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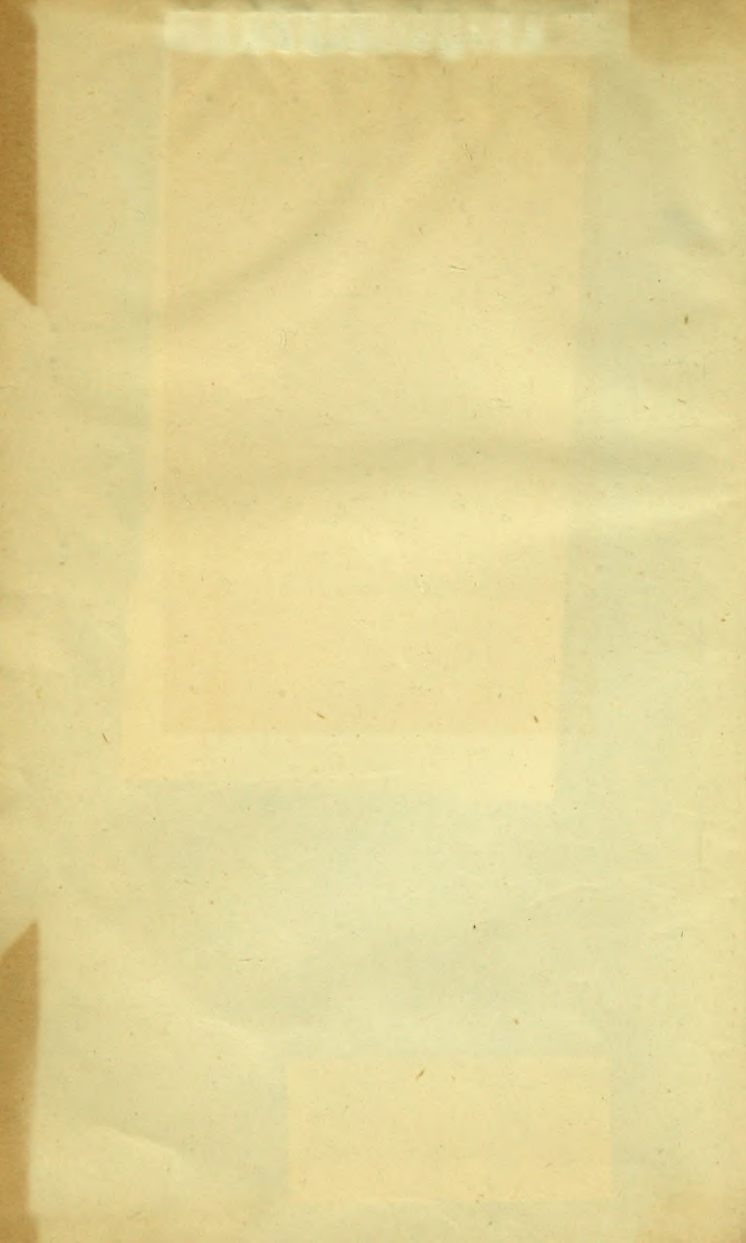
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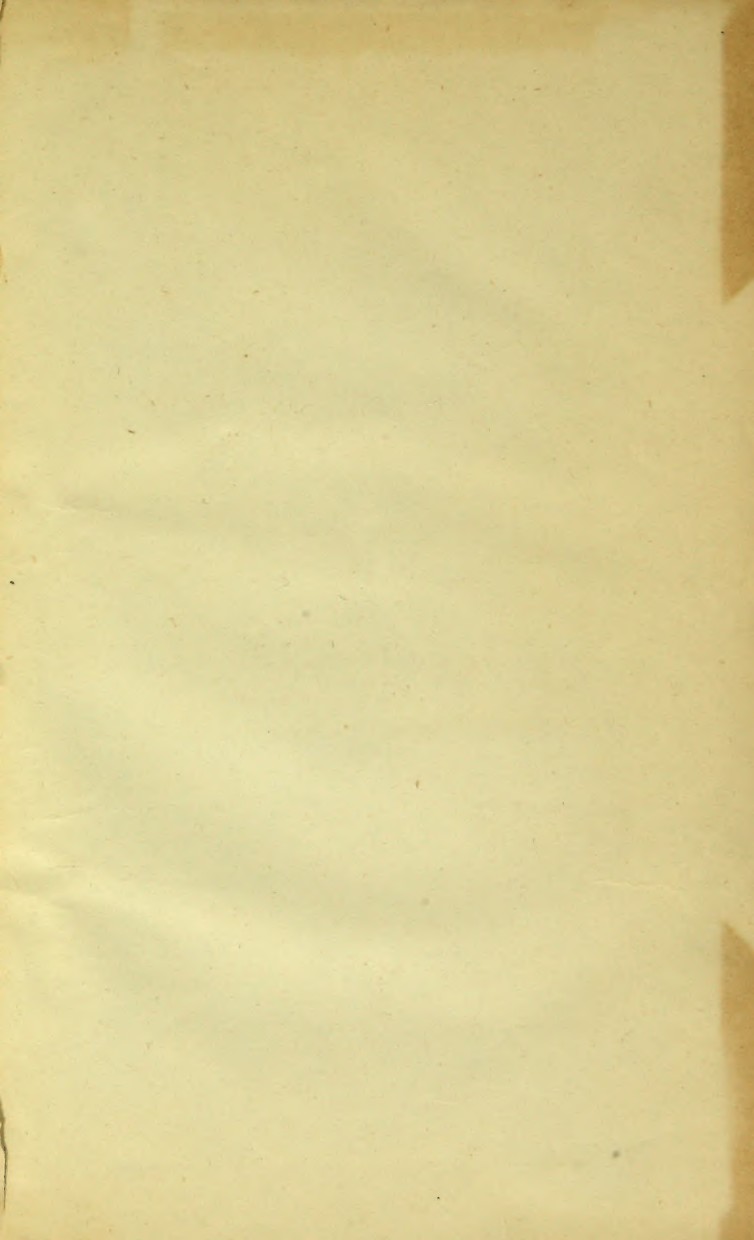
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## ERRATA.

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Page 178, line penultimate, for 1 read 2.

- " 180, " 11, for Soc. read Sc.
- " 183, " 12, " subnea read subænea.
- " 189, " 15, " piceus read picea.
- " 195, " 25, " 21 read 2.
- " 197, " 20, before Thyreopterus, add Tetragonoderus Dej. 1 Lecontei Dej.  
Sp. gen. Habitat in provinciis australibus minus frequens.
- " 209, " 29, for pygmæus read pygmæa.
- " 341, " 19, " incurvatæ read incurvatæ.
- " 354, " ult. add striis.
- " 376, " 16, and 17, for femoratus and sericeus read femorata and sericea.
- " 401, " 15, for impressionbus read impressionibus.





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*A New Mineralogical Nomenclature.* By JAMES D.  
DANA, A. M. (*Corresponding Member.*)

*Read March, 1836.*

THE chief obstacles to the introduction of a systematic method of naming the mineral species, have gradually been removed during the rapid progress which the science of mineralogy has of late years experienced. The difficulties have been still farther diminished by the important aid which Chemistry has rendered to mineralogical science, and also by the introduction of a natural classification of minerals, for which we are indebted to that deservedly distinguished German mineralogist, MOHS. In this arrangement, M. Mohs has not wholly relied upon chemical characters; the exclusive adoption of which would have degraded mineralogy from the rank of an independent science, and merged it in that of chemistry: nor has he depended on physical characters solely; for although the latter are more especially employed, the author has throughout been guided to a certain extent by that important source of physical characters, viz. chemical composition. A cabinet arranged according to the system of Mohs, presents with remarkable clearness, a chain of affinities running through the whole, and connecting all the several parts. The *Gases* and *Liquids*, with which the arrangement commences, are followed by the *Salts*, so disposed as to present an increase in stability, hardness, and lustre, as the eye proceeds onward. Among the *Gems*, we arrive at the diamond, in which these characters reach their climax. Thence descending in the series, we gradually pass through the *Metallic oxyds* to the *Native metals*. In these, the light-coloured species are followed by the *Sulphurets* and *Arsenids* of similar color and lustre, which are suc-



ceeded by the dark-colored metallic sulphurets ; and these pass insensibly to the sulphurets without a true metallic lustre. From the latter there is a natural transition to *Sulphur*, and its close allies the *Resins* and *Coals*, with which the series terminates. By this association of species agreeing in external characters, the attention of the student is naturally led from the observation of their many resemblances, to a particular consideration of their several peculiarities. An arrangement of this kind is necessarily inadequate for the determination of the names of species : it may, however, be an important aid to those who have some general acquaintance with the science. The nomenclature proposed by Mohs, presents a very uncouth appearance when translated from the German into our less pliant language ; and is moreover wholly destitute of that conciseness and elegance which the employment of the Latin language, confers upon the nomenclature of botany and zoology. To enable the science of mineralogy to participate in these advantages, which have exerted such an important influence upon the progress of those sciences, has been the design of the author in offering the following system of mineralogical nomenclature.

The arrangement of the species is in general similar to that proposed by Mohs, with such alterations as it was supposed would tend still further to exhibit their natural relations. In accordance with this view, the order *Mica* of Mohs has been abolished, and the species it comprised restored to their true congeners in other orders. The general characters of the orders are thus rendered liable to a few exceptions ; but this inconvenience, which has thus far been found unavoidable in other departments of natural history, is deemed of little consequence, when contrasted with the violation of natural affinities which must otherwise ensue.

The following remarks will sufficiently explain the terms employed in the accompanying catalogue. The names of the species usually express either the primary form of the mineral,

the occurring form, the peculiarity of its cleavage, or some peculiar physical or chemical character. In specifying the crystalline form, the following terms have been employed, viz : *cubicus*, when the primary is a cube ; *octahedrus*, when the regular octahedron ; *dodecahedrus*, when the rhombic dodecahedron ; *rhombohedrus*, when the rhombohedron ; *pyramidalis*, when an octahedron not regular ; *prismaticus*, when a prism, or more particularly a rhombic or rectangular prism. The several right prisms have been designated by a term indicating the base of the prism ; thus *quadratus*, for right square prism ; *rectangulus*, *rhombicus*, *rhomboidcus*, respectively, for right rectangular, rhombic or rhomboidal prisms. The term *obliquus* has been restricted to the *oblique rhombic* prism, the oblique rhomboidal being expressed by the adjective *triclinatus*, in allusion to the three oblique inclinations of its axes.

Other more general terms have been occasionally employed, depending on the following classification of the primary forms, founded on the relations of their axes :

Class 1. *Monometrica*, (*μονος* one, and *μετρον* measure) : includes the cube, regular octahedron and rhombic dodecahedron, in which the three axes are equal, or of one kind.

Class 2. *Dimetrica*, (*δύς* two, and *μετρον*) : includes the right square prism and square octahedron, in each of which the axes are of two kinds.

Class 3. *Trimetrica*, (*τρίς* three, and *μετρον*) : includes the right rectangular and rhombic prisms, and the right rectangular and rhombic octahedrons, in which the three rectangular axes are unequal.

Class 4. *Monoclinata*, (*μονος* one, and *κλινω* to incline) : includes the right rhomboidal and oblique rhombic prisms in which one of the three axes is obliquely inclined to one of the remaining two.

Class 5. *Triclinata*, (*τρίς* three, and *κλινω*) : includes the oblique rhomboidal prism, in which all three axes intersect at oblique angles.

Class 6. *Tetragonata*, (*τετταρα* four, and *ᾠζων* axis) : includes the hexagonal prism and rhombohedron, which have four axes.

The relations of the forms, in any one of these classes, is such that it may be impossible in some instances, from an entire indis-

tinctness of the cleavages, to determine which one is the primary; for either of the forms in the class Trimetrica (for example) may have the other three as secondaries.

The peculiarities of cleavage have been expressed as follows:

*Acrotomus*, (ἀκρον *summit*, and τέμνω *to cut off*): cleavage parallel to the base of a prism or octahedron, or to a plane truncating the vertex of the rhombohedron.

*Peritomus*, (περί *about*, and τέμνω): cleavage parallel with each of the lateral planes.

*Diatomus*, (δια *through*, and τέμνω): cleavage in the direction of a diagonal plane.

*Dystomus*, (δυσ *difficult*, and τέμνω): cleavage difficultly obtained.

*Eutomus*, (ευ *easily*, and τέμνω): cleavage easily obtained.

The names proposed for the Classes are I. EPIGÆA, (ἐπὶ *upon*, and γαῖα *earth*); II. ENTOGÆA, (εντός *within*, and γαῖα); III. HYPOGÆA, (ὑπο *beneath*, and γαῖα): the *first* includes the fluids and those soluble minerals whose formation is going on at the present time from the decomposition of other species, and which therefore are necessarily *superterraneous*; the *second*, the species which occur in and compose rock-strata, and of which it is therefore appropriately said that their native situation is *within* the earth; the *third*, those which have been literally buried, as the coals and resins.

The remaining terms will be explained as they are employed.

#### Classis I. EPIGÆA.

G. under 3.8. No bituminous odor. Taste of solid individuals acid, alkaline, or saline.

#### Classis II. ENTOGÆA.

G. above 1.8. Tasteless.

#### Classis III. HYPOGÆA.

G. under 1.8.

Classis I. EPIGÆA.

Ordo 1. RHEUTINEA (*ῥευτός, fluid.*)

Gaseous or liquid.

Ordo 2. STERINEA, (*στερεός, solid.*)

Individuals solid.

Classis II. ENTOGÆA.

Ordo 1. HALINEA, (*αλινός, saline.*)

H=1—5.5. G=1.8—3.3. Lustre unmetallic. Streak uncolored.

Ordo 2. BARYTINEA, (*βαρύτης, weight.*)

H=2—6. G=3—8.1. Lustre unmetallic.

Ordo 3. CERATINEA, (*κεράς, horn;*) in allusion to the lustre.

H=1—2. G=5.5—6.5.

Ordo 4. OSMERINEA, (*ὀσμῆρος, odorous.*)

H=1—3. G=2—3.1. Lustre unmetallic. Streak uncolored. Odor, when moistened by the breath, argillaceous.

Ordo 5. CHALICINEA, (*χάλιξ, siler*; the species are mostly silicates.)

H=2—7. G=2.6—4. Lustre unmetallic. Streak uncolored.

Ordo 6. HYALINEA, (*υαλινός, glassy*; alludes to the high degrees of lustre.)

H=5.5—10. G=2.6—4.8. Lustre unmetallic. Streak uncolored.

Ordo 7. SCAPTINEA, (*σκάπτος, that which is dug*; includes the oxyds of the metals, the metallic silicates, and salts of metallic acids.)

H=1—7. G=2—8. Color dark red—black. Streak colored, unmetallic.

Ordo 8. METALLINEA, (*μεταλλον*, *metal*; includes the native metals.)

H=0—5. G=5.7—20. Lustre and Streak metallic.  
Color white or reddish.

Ordo 9. PYRITINEA, (*πυριτης*, *pyrites*; includes the light-colored metallic sulphurets, arsenids and selenids.)

H=3—6.5. G=4.6—9.4. Lustre metallic. Color white—yellow—reddish.

Ordo 10. GALINEA, (*γελειν*, *to shine*; includes the dark-colored metallic sulphurets, arsenids, &c.)

H=1—4. G=4.2—8.5. Lustre metallic. Color dark.

Ordo 11. ADELINEA, (*ἄδηλος*, *unmanifest*; includes the non-metallic sulphurets, whose metallic nature is *disguised* by the mineralizing ingredient.)

H=1—4. G=3.3—5.9. Streak colored.

Ordo 12. THEURIEA, (*θειον*, *sulphur*.)

H=1.5—2.5. G=2—2.1. Streak yellowish-white.  
Combustible.

### Classis III. HYPOGÆA.

Ordo 1. PITTINEA, (*πιττα*, *pitch*.)

Easily fusible.

Ordo 2. ANTHRACINEA, (*ανθραξ*, *coal*.)

Infusible.



## CLASS I.—EPIGÆA.

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### ORDER I. RHEUTINEA.

#### Genus 1. AER.

##### *Gaseous.*

- |                      |                                |
|----------------------|--------------------------------|
| Sp. 1. A. terrenus,  | <i>Carburetted Hydrogen.</i>   |
| 2. A. Hydrogenicus,  | <i>Hydrogen.</i>               |
| 3. A. Phosphoricus,  | <i>Phosphuretted Hydrogen.</i> |
| 4. A. fetidus,       | <i>Sulphuretted Hydrogen.</i>  |
| 5. A. Azoticus,      | <i>Nitrogen.</i>               |
| 6. A. atmosphericus, | <i>Atmospheric Air.</i>        |
| 7. A. Carbonicus,    | <i>Carbonic Acid.</i>          |
| 8. A. Sulphureus,    | <i>Sulphurous Acid.</i>        |
| 9. A. muriaticus,    | <i>Muriatic Acid.</i>          |

#### Genus 2. AQUA.

##### *Liquid.*

- |                    |                        |
|--------------------|------------------------|
| Sp. 1. A. limpida, | <i>Water.</i>          |
| 2. A. Sulphurica,  | <i>Sulphuric Acid.</i> |
- 

### ORDER II. STERINEA.

#### Genus 1. ACIDUM.

H=1—2. G=1.4—3.7. *Taste weak.*

- |                      |                       |
|----------------------|-----------------------|
| Sp. 1. A. Boracicum, | <i>Boracic Acid.</i>  |
| 2. A. Arsenosum,     | <i>Arsenous Acid.</i> |

#### Genus 2. BORAX.

H=2—2.5. G=1.7.—1.8. *Taste sweetish-alkaline.*

- |                     |               |
|---------------------|---------------|
| Sp. 1. B. obliquus, | <i>Borax.</i> |
|---------------------|---------------|

## Genus 3. ALUMEN.

H=2—3. G=1.5.—1.9. *Taste styptic.*

- |                       |                        |
|-----------------------|------------------------|
| Sp. 1. A. officinale, | <i>Native Alum.</i>    |
| 2. A. volcanicum,     | <i>Solfatarite.</i>    |
| 3. A. Magnesicum,     | <i>Magnesian Alum.</i> |
| 4. A. Ammoniacum,     | <i>Ammonia Alum.</i>   |

## Genus 4. NATRON.

H=1—3. G=1.4—2.2. *Taste alkaline.*

- |                          |                     |
|--------------------------|---------------------|
| Sp. 1. N. Gay-Lussianum, | <i>Gay-Lussite.</i> |
| 2. N. efflorescens,      | <i>Natron.</i>      |
| 3. N. permanens,         | <i>Trona.</i>       |

## Genus 5. SAL.

H=2. G=2.2—2.3. *Taste purely saline.*

- |                    |                     |
|--------------------|---------------------|
| Sp. 1. S. cubicum, | <i>Common Salt.</i> |
|--------------------|---------------------|

## Genus 6. PICRALUM.\*

H=1.5—2.5. G=1.4—2.3. *Taste saline and bitter.*

- |                     |                             |
|---------------------|-----------------------------|
| Sp. 1. P. Glauberi, | <i>Glauber's Salt.</i>      |
| 2. P. Thenardianum, | <i>Thenardite.</i>          |
| 3. P. rhombicum,    | <i>Epsom Salt.</i>          |
| 4. P. Reussii,      | <i>Reussite.</i>            |
| 5. P. volcanicum,   | <i>Mascagnine.</i>          |
| 6. P. Vesuvianum,   | <i>Aphthitalite.</i>        |
| 7. P. octahedrum,   | <i>Sal-Ammoniac.</i>        |
| 8. P. deliquesceus, | <i>Nitrate of Magnesia.</i> |
| 9. P. tenellum,     | <i>Nitrate of Lime.</i>     |

## Genus 7. NITRUM.

H=1.5—2. G=1.9—2.1. *Taste cooling and saline.*

- |                         |                           |
|-------------------------|---------------------------|
| Sp. 1. N. rhombohedrum, | <i>Nitrate of Soda.</i>   |
| 2. N. rhombicum,        | <i>Nitrate of Potash.</i> |

---

\* Ηεκρῆς, *bitter*, and ἄλς *salt*. For the sake of euphony the aspirate has been dropped in the composition of this and similar words.

Genus 8. VITRIOLUM.

H=2—2.5. G=1.8—3.2. *Taste astringent and metallic, nauseous.*

Sp. 1. V. Martiale,*	<i>Copperas.</i>
2. V. hexagonum,	<i>White Copperas.</i>
3. V. parasiticum,	<i>Yellow Copperas.</i>
4. V. Cyprium,	<i>Blue Vitriol.</i>
5. V. Zincicum	<i>White Vitriol.</i>
6. V. Cobalticum,	<i>Cobalt-Vitriol.</i>
7. V. Uranicum,	<i>Johannite.</i>
8. V. bicolor,	<i>Botryogen.</i>

Genus 9. GÆALUM.†

H=2.5—3.5. G=2.7—2.9. *Taste weak.*

Sp. 1. G. obliquum,	<i>Glauberite.</i>
2. G. columnare,	<i>Polyhalite.</i>

CLASS II.—ENTOGÆA.

ORDER I. HALINEA.

Genus 1. ASTASIALUS.‡

H=1.5—2. G=1—2.5. *Decomposed in the flame of a candle.*

Sp. 1. A. phytogeneus,§	<i>Oxalate of Lime.</i>
-------------------------	-------------------------

Genus 2. CRYALUS.||

H=2.25—2.5. G=2.9—3. *Fusible in the flame of a candle.*

Sp. 1. C. fusilis,	<i>Cryolite.</i>
--------------------	------------------

\* The salts of iron were termed Martial by the alchemists, from Mars, the alchemistic name of iron.

† Γαῖα, earth, and ἅλς, salt, in allusion to the composition and slight solubility of the species.

‡ Ἀστατος, unstable; alludes to the facility with which the species is decomposed.

§ Φυτογενεος, originating from plants; the species is supposed to be of vegetable origin.

|| Κρύος, ice, and ἅλς, salt; from the ready fusibility of the mineral.

## Genus 3. ALUMINUS.

H=5. G=2.7—2.8.

- Sp. 1. A. rhombohedrus,
- Alum-Stone*

## Genus 4. FLUELLUS.

H=4—5.5. G=2.9—3.4.

- Sp. 1. F. pyramidalis, *Fluellite*.  
 2. F. octahedrus, *Fluor-Spar*.  
 3. F. hexagonus, *Apatite*.  
 4. F. obliquus, *Wagnerite*.  
 5. F. rhombicus, *Herderite*.  
 6. F. Childrenii, *Childrenite*.

## Genus 5. ASTRALUS.\*

H=3.5—4. G=2.3—2.4. *Mostly stellately and hemispherically columnar.*

- Sp. 1. S. rhombicus,
- Waxellite*
- .

## Genus 6. GYPSALUS.†

H=1.5—3.5. G=2.3—3. *One or more cleavages very perfect and easily obtained. Contain lime.*

- Sp. 1. G. stellatus, *Pharmacolite*.  
 2. G. rhombicus, *Haidingerite*.  
 3. G. rhomboideus, *Gypsum*.  
 4. G. rectangulus, *Anhydrite*.  
 5. G. Cobalticus, *Roselite*.  
 6. G. fusilis, *Hydroboracite*.

## Genus 7. CALCIUS.‡

H=2.5—4. G=2.5—3.3. *Contain lime.*

- Sp. 1. C. rhombohedrus, *Culcareous Spar*.  
 2. C. rhombicus, *Arragonite*.  
 3. C. Dolomari, *Dolomite*.  
 4. C. decolorans, *Ankerite*.

## Genus 8. MAGNESIALUS.

H=1—4.5. G=2.5—3.2. *Contain magnesia.*

- Sp. 1. M. rhombohedrus, *Rhomb Spar*.  
 2. M. fibrosus, *Magnesite*.  
 3. M. pulvereus, *Hydromagnesite*.

\* Αστρον, a star.

† Γυψος lime, and αλς salt.

‡ Καλς, lime.

ORDER II. BARYTINEA.

Genus 1. BARALUS.\*

H=2.5—4. G=3.3—4.8. Streak uncolored. Contain strontia or baryta.

- Sp. 1. B. rubefaciens,† *Strontianite.*  
 2. B. prismaticus, *Celestine.*  
 3. B. obliquus, *Baryto-calcite.*  
 4. B. fusilis, *Wilherite.*  
 5. B. rhombohedrus, *Dracite.*  
 6. B. ponderosus. *Heavy spar.*

Genus 2. SPANIALUS.‡

H=4—5. G=3.4—4.9.

- Sp. 1. S. hexagonus, *Fluorine.*  
 2. S. dodecahedrus, *Subsesquifluate of Cerium.*  
 3. S. quadratus, *Carbonate of Cerium.*  
 4. S. Wollastonii, *Silicate of Cerium.*  
 5. S. octahedrus, *Microsite.*  
 6. S. rhombicus, *Yttrio-cerite.*  
 7. S. peritomus, *Xenotime.*

Genus 3. SCHEELIUS.

H=4—4.5. G=6—6.1.

- Sp. 1. S. pyramidalis, *Tungstate of lime.*

Genus 4. STIMMIUS.§

H=2.5—3. G=5.5—5.6. Contain antimony.

- Sp. 1. S. rhombicus, *White antimony.*

Genus 5. BISMUTALUS.

H=3—4.5. G=5.9—6.1. Contain bismuth.

- Sp. 1. B. ochraceus, *Bismuth-Ochre.*  
 2. B. dodecahedrus, *Bismuth-Blende.*

Genus 6. ZINCALUS.

H=2.5—5.5. G=4.3—4.5. Contain zinc.

- Sp. 1. Z. rhombohedrus, *Calamine.*  
 2. Z. peritomus, *Electric Calamine.*  
 3. Z. acrotomus, *Willenite.*  
 4. Z. diatomus, *Hopeite.*

\* Βάρος, weight, and ἄλς, salt.

† In allusion to its tinging flame red.

‡ Σπάνιος, rare, and ἄλς; the species are salts of two rare minerals, cerium and yttrium.

§ Στίμμι, antimony.



## Genus 7. MARANTALUS.\*

H=3—6. G=3—3.9. Color darkened on exposure. Contain manganese and iron.

- Sp. 1. M. rhombohedrus, *Spathic Iron.*  
 2. M. rhombicus, *Junkerite.*  
 3. M. decrepitans, *Diallogite.*  
 4. M. quadratus, *Triplite.*  
 5. M. Fresnii, *Hctepozite.*  
 6. M. fusilis, *Huraulite.*

## Genus 8. AREALUS.†

H=1.5—5. G=2.6—3.8. Contain iron.

- Sp. 1. A. cubicus, *Cube Ore.*  
 2. A. trimetricus, *Scorodite.*  
 3. A. Argentiferus, *Chenocoprolite. D.*  
 4. A. rhombicus, *Triphiline.*  
 5. A. radiatus, *Cacoxenite.*  
 6. A. rhomboideus, *Vivianite.*  
 7. A. divergens, *Anglarite.*  
 8. A. rhombohedrus, *Pyrosmalite.*  
 9. A. foliaceus, *Cronstedtite.*

## Genus 9. COBALTALUS.

H=1.5—2. G=3. Color some shade of red. Contain cobalt.

- Sp. 1. C. rubellus, *Cobalt-Bloom.*

## Genus 10. CRONALUS.‡

H=2—4.5 G=5.3—8.1. Color white, green, blue, or red. Contain lead.

- Sp. 1. C. rhombicus, *White Lead.*  
 2. C. quadratus, *Corneous Lead.*  
 3. C. Vesuvianus, *Cotunnite.*  
 4. C. peritomus, *Cerasite.*  
 5. C. acrotomus, *Leadhillite.*  
 6. C. flexilis, *Dyoxylite.*  
 7. C. Angleseanus, *Anglesite.*  
 8. C. amorphus, *Hedyphane.*  
 9. C. resiniformis, *Plumbo-resinite.*  
 10. C. hexagonus,  
 11. var. 1. speciosus, *Pyromorphite.*  
 12. var. 2. alliaceus, *Mimetene.*  
 13. C. pyramidalis, *Molybdate of Lead.*  
 14. C. Vanadicus, *Vanadate of Lead.*

\* *Μαράνω*, to fade, alluding to the change of color the species undergo on exposure.

† *Αρης*, Mars, the alchemistic name of iron, and *ἅλς*, salt.

‡ *Κρόνος*, Saturn, the alchemistic name of lead, and *ἅλς*, salt.

- |                        |                            |
|------------------------|----------------------------|
| Sp. 15. C. ponderosus, | <i>Tungstate of Lead.</i>  |
| 16. C. hyacinthus,     | <i>Chromate of Lead.</i>   |
| 17. C. rubeus,         | <i>Melanochroite.</i>      |
| 18. C. Vauquelini,     | <i>Vauquelinite.</i>       |
| 19. C. diatomus,       | <i>Caledonite.</i>         |
| 20. C. rhomboideus,    | <i>Cupreous Anglesite.</i> |
| 21. C. ochraceus,      | <i>Minium.</i>             |

Genus 11. CYPRALUS.\*

H=1—4.5. G=2.5—4.3. Color green or blue. Contain copper.

- |                      |                          |
|----------------------|--------------------------|
| Sp. 1. C. acrotomus, | <i>Aphanesite.</i>       |
| 2. C. cæruleus,      | <i>Blue Malachite.</i>   |
| 3. C. vulgaris,      | <i>Green Malachite.</i>  |
| 4. C. amorphus,      | <i>Chrysocola.</i>       |
| 5. C. rhombohedrus,  | <i>Diopase.</i>          |
| 6. C. speciosus,     | <i>Euchroite.</i>        |
| 7. C. concentricus,  | <i>Erinite.</i>          |
| 8. C. rectangulus,   | <i>Liroconite.</i>       |
| 9. C. hemihedrus,    | <i>Pseudo-malachite.</i> |
| 10. C. dystomus,     | <i>Libethenite.</i>      |
| 11. C. acicularis,   | <i>Olivinite.</i>        |
| 12. C. exhalans,     | <i>Atacamite.</i>        |
| 13. C. foliaceus,    | <i>Copper-Mica.</i>      |
| 14. C. decrepitans,  | <i>Copper-Froth.</i>     |

Genus 12. NICCALUS.

H=2—2.5. Contain nickel.

- |                     |                      |
|---------------------|----------------------|
| Sp. 1. U. prasinus, | <i>Nickel Green.</i> |
| 2. U. Herreri,      | <i>Herrerite.</i>    |

Genus 13. URANALUS.

H=2—3. G=3.1—3.2. Contain uranium

- |                      |                      |
|----------------------|----------------------|
| Sp. 1. U. ochraceus, | <i>Uranic ochre.</i> |
| 2. U. quadratus,     | <i>Uranite.</i>      |

ORDER III. CERATINEA.

Genus CERATUS:

H=1—2. G=5.5—6.5.

- |                    |                          |
|--------------------|--------------------------|
| Sp. 1. C. cubicus, | <i>Horn Silver.</i>      |
| 2. C. quadratus,   | <i>Horn Quicksilver.</i> |
| 3. C. foliatus,    | <i>Iodic Silver.</i>     |

---

\* Κόπρος, copper, and ἅλς, salt.

## ORDER IV. OSMERINEA.

## Genus 1. HYDROLUS.\*

H=1—3.5. G=1.4—2.1. *Fusion difficult—infusible.*

- |                      |                      |
|----------------------|----------------------|
| Sp. 1. H. cerinus,†  | <i>Halloylite.</i>   |
| 2. H. argilliformis, | <i>Kollyrite.</i>    |
| 3. H. adhærens,      | <i>Scarbroite.</i>   |
| 4. H. pyrosmicus,‡   | <i>Pyrargillite.</i> |
| 5. H. Gibbsianus,    | <i>Gibbsite.</i>     |
| 6. H. tinctus,       | <i>Allophane.</i>    |

## Genus 2. OPHITIS.§

H=2—4. G=2.5—2.9.

- |                     |                      |
|---------------------|----------------------|
| Sp. 1. O. communis, | <i>Serpentine.</i>   |
| 2. O. figularis,    | <i>Agalmatolite.</i> |
| 3. O. reniformis,   | <i>Kerolite.</i>     |

## Genus 3. STYLUS.||

H=2—3. G=2.6.—2.8. *In prisms of six or twelve sides.*

- |                      |                   |
|----------------------|-------------------|
| Sp. 1. S. hexagonus, | <i>Pinite.</i>    |
| 2. S. acrotomus,     | <i>Fahlunite.</i> |

## Genus 4. NEMATUS.¶

H=2—3. G=2.3—2.7. *Delicately columnar.*

- |                        |                    |
|------------------------|--------------------|
| Sp. 1. N. rectangulus, | <i>Picrosmine.</i> |
| 2. N. scopiformis,     | <i>Osmelite.</i>   |
| 3. N. gracilis,        | <i>Nemalite.</i>   |

## Genus 5. MARGARITUS.\*\*

H=1.5—3. G=2—3.1. *Lamellar.*

- |                       |                         |
|-----------------------|-------------------------|
| Sp. 1. M. Magnesicus, | <i>Native Magnesia.</i> |
| 2. M. saponaceus,     | <i>Talc.</i>            |

\* Υδωρ, *water*; refers to the large proportion of water in the species.

† Waxy, in allusion to its lustre.

‡ Πῦρ, *fire*, and ὀσμή, *odor*.§ An old name of serpentine, derived from the Greek, ὄφις, *a snake*.|| Στόλος, *a column*, in allusion to the hexagonally prismatic forms presented by the species.¶ Νῆμα, *a thread*; refers to the columnar structure of the species.\*\* Μαργαρίτης, *pearl*; alludes to the lustre.

ORDER V. CHALICINEA.

Genus 1. MICA.

H=2—4.5. G=2.6—3.1. *Structure highly foliated.*

- |        |                |                     |
|--------|----------------|---------------------|
| Sp. 1. | M. margarina*, | <i>Margarite.</i>   |
| 2.     | M. hexagona,   | <i>Black Mica.</i>  |
| 4.     | M. obliqua,    | <i>Common Mica.</i> |

Genus 2. PHYLLINIUS.†

H=3.5—6. G=2.6—3.4. *Structure foliated.*

- |        |                  |                       |
|--------|------------------|-----------------------|
| Sp. 1. | P. Schilleri,    | <i>Schiller Spar.</i> |
| 2.     | P. æreus,        | <i>Bronzite.</i>      |
| 3.     | P. Seybertianus, | <i>Seybertite.</i>    |
| 4.     | P. metallinus,   | <i>Hypersthene.</i>   |

Genus 3. VULCANUS.‡

H=3.5—6. G=2—2.7. *Species volcanic or amygdaloidal, sometimes granitic.*

- |        |                    |                     |
|--------|--------------------|---------------------|
| Sp. 1. | V. rhomboideus,    | <i>Heulandite</i>   |
| 2.     | V. fascicularis,   | <i>Stilbite.</i>    |
| 3.     | V. Thomsonianus,   | <i>Thomsonite.</i>  |
| 4.     | V. hemiquadratus,  | <i>Edingtonite.</i> |
| 5.     | V. rhombicus,      | <i>Natrolite.</i>   |
| 6.     | V. peritomus,      | <i>Mesotype.</i>    |
| 7.     | V. crispans,       | <i>Scolecite.</i>   |
| 8.     | V. stramineus,     | <i>Carpholite.</i>  |
| 9.     | V. tenax,          | <i>Dysclasite.</i>  |
| 10.    | V. acutus,         | <i>Epistilbite.</i> |
| 11.    | V. Brewsterianus,  | <i>Brewsterite.</i> |
| 12.    | V. flabelliformis, | <i>Mesolite.</i>    |
| 13.    | V. Comptonianus,   | <i>Comptonite.</i>  |
| 14.    | V. quadratus,      | <i>Apophyllite.</i> |
| 15.    | V. efflorescens,   | <i>Laumonite.</i>   |
| 16.    | V. gemellus,       | <i>Harmotome.</i>   |
| 17.    | V. Philipsianus,   | <i>Philipsite.</i>  |
| 18.    | V. cubicus,        | <i>Analcime.</i>    |
| 19.    | V. dodecahedrus,   | <i>Sodalite.</i>    |
| 20.    | V. trapezohedrus,  | <i>Leucite.</i>     |
| 21.    | V. rhombohedrus,   | <i>Chabazite.</i>   |
| 22.    | V. Levyanus,       | <i>Levyne.</i>      |
| 23.    | V. exfolians,      | <i>Gmelinite.</i>   |
| 24.    | V. dystomus,       | <i>Datholite.</i>   |

\* Alludes to the pearly lustre.

† Φύλλον, a leaf, in allusion to the foliated structure of the species.

‡ Refers to the occurrence of the species in rocks of igneous origin.

## Genus 4. CLASISTYLUS.\*

H=6—6.5. G=2.3—3. Color light-green; colorless. Commonly botryoidal.

Sp. 1. C. acrotomus, *Prehnite*.

## Genus 5. NEPHRUS.

H=5.5—7. G=2.9—3.4. Massive.

Sp. 1. N. amorphus, *Nephrite*.2. N. peritomus, *Saussurite*.

## Genus 6. PETALUS.

H=6—6.5. G=2.4—2.5. Massive.

Sp. 1. P. rhombicus, *Petalite*.

## Genus 7. LAZULUS.

H=5—6. G=2.3—3.1. Color blue or green. Cleavage indistinct.

Sp. 1. L. amorphus, *Turquoise*.2. L. rhombicus, *Lazulite*.3. L. triclinalus, *Blue Spar*.

## Genus 8. SPATUM.

H=4—6.5. G=2.1—3.1.

Sp. 1. S. hexagonum, *Nepheline*.2. S. Herschellianum, *Herschellite*.3. S. oleaceum, *Elaeolite*.4. S. opalescens, *Labradorite*.5. S. orthotomum,† *Feldspar*.6. S. gemellum, *Pericline*.7. S. triclinalum, *Albite*.8. S. Vesuvianum, *Anorthite*.9. S. roseum, *Latrobeite*.10. S. quadratum, *Scapolite*.11. S. Gehlenianum, *Gehlenite*.12. S. volcanicum, *Gismondine*.

## Genus 9. SPATINIUS.

H=5.5—6.5. G=3—3.5.

Sp. 1. S. decolorans, *Manganese-Spar*.2. S. rhombohedrus, *Troostite*.3. S. reniformis, *Bustamite*.

\* Κλάω, to break, and στήλος, a column, in allusion to the resemblance to a broken column, often presented by the crystals of this species.

† 'Οπίς, straight, and τήνω, I cleave, refers to the fact, that its two cleavages are at right angles with one another.

Genus 10. AUGITUS.

H=5-7. G=2.9-4.

- |                      |                       |
|----------------------|-----------------------|
| Sp. 1. A. tabularis, | <i>Tabular Spar.</i>  |
| 2. A. rhombicus,     | <i>Spodumene.</i>     |
| 3. A. diatomus,      | <i>Pyroxene.</i>      |
| 4. A. dystomus,      | <i>Bucklandite.</i>   |
| 5. A. acrotomus,     | <i>Babingtonite.</i>  |
| 6. A. Protæus,       | <i>Hornblende.</i>    |
| 7. A. phyllinus,     | <i>Anthophyllite.</i> |
| 8. A. scopiformis,   | <i>Cumingtonite.</i>  |
| 9. A. peritomus,     | <i>Arfvedsonite.</i>  |
| 10. A. rhomboideus,  | <i>Epidote.</i>       |
| 11. A. Withami,      | <i>Withamite.</i>     |
| 12. A. cuspidatus,   | <i>Acmite.</i>        |
| 13. A. Lithicus,     | <i>Amblygonite.</i>   |

ORDER VI. HYALINEA.

Genus 1. ANDALUSIUS.

H=7-7.5. G=3.1-3.2.

- |                        |                    |
|------------------------|--------------------|
| Sp. 1. A. prismaticus, | <i>Andalusite.</i> |
|------------------------|--------------------|

Genus 2. EPIMECIUS.\*

H=6-7. G=3.1-3.7. Crystals usually long and slender. Color blue—brown—white.

- |                      |                     |
|----------------------|---------------------|
| Sp. 1. E. cyaneus,   | <i>Kyanite.</i>     |
| 2. E. dissiliens,†   | <i>Diaspore.</i>    |
| 3. E. Sillimanianus, | <i>Sillimanite.</i> |
| 4. E. Bucholzianus,  | <i>Bucholzite.</i>  |

Genus 3. TURMALUS.

H=6.5-8. G=3.-3.4. Color black—dark-brown—dark-blue—green—red—white.

- |                         |                    |
|-------------------------|--------------------|
| Sp. 1. T. rhombohedrus, | <i>Tourmaline.</i> |
|-------------------------|--------------------|

Genus 4. BERYLLUS.

H=7.5-8 G=2.8-3.1. Color green—bluish—colorless.

- |                      |                   |
|----------------------|-------------------|
| Sp. 1. B. hexagonus, | <i>Beryl.</i>     |
| 2. B. rhomboideus,   | <i>Euclase.</i>   |
| 3. B. rhombohedrus,  | <i>Phenacite.</i> |

\* *Epimecius*, very long.

† *Flying in pieces*; alludes to the action under the blowpipe.



## Genus 5. SAPHIRUS.

H=7.5—9. G=3.5—4.6.

- Sp. 1. S. rectangula; *Chrysoberyl.*  
 2. S. octahedra, *Spincl.*  
 3. S. cutoma, *Automolite.*  
 4. S. infusilis, *Dysluite.*  
 5. S. rhombohedra, *Sapphire.*

## Genus 6. ADAMAS.

H=10. G=3.1—3.6.

- Sp. 1. A. octahedrus, *Diamond.*

## Genus 7. TOPAZIUS.

H=8. G=3.4—3.6.

- Sp. 1. T. rhombicus, *Topaz.*  
 2. T. Vesuvianus, *Forsterite.*

## Genus 8. CHRYSOLITHUS.

H=6.5—7.5. G=3.3.—3.5.

- Sp. 1. C. rectangulus, *Chrysolite.*  
 2. C. obliquus, *Ligurite.*

## Genus 9. HYALUS.

H=5.5—7. G=2—3.3.

- Sp. 1. H. bicolor, *Iolite.*  
 2. H. acutus, *Axinite.*  
 3. H. rhombohedrus, *Quartz.*  
 4. H. opalinus, *Opal.*  
 5. H. Vulcani, *Obsidian.*  
 6. H. sphæculus, *Sphæculite.*  
 7. H. feriferus, *Isopyre.*

## Genus 10. BORACIUS.

H=7. G=2.9—3. Crystals monometric. Color white or gray.

- Sp. 1. B. hemihedrus, *Boracite.*

## Genus 11. CARBUNCULUS.

H=6.—7.5. G=2.9—4.8.

- Sp. 1. C. hemihedrus, *Helvin.*  
 2. C. obliquus, *Brucite.*  
 3. C. acrotomus, *Humite.*  
 4. C. dimetricus, *Idocrase.*

- Sp. 5. C. dodecahedrus, *Garnet.*  
 6. C. quadratus, *Zircon.*  
 7. C. rhombohedrus, *Eudialyte.*  
 8. C. decussatus,\* *Staurolite.*  
 9. C. rhombicus, *Ostranite.*

## ORDER VII. SCAPTINEA.

### Genus 1. RUTILUS.†

H=3.5—7. G=3.2—6. *Color dark-red—brownish-black.*

- Sp. 1. R. Brucii, *Red Zinc Ore.*  
 2. R. quadratus, *Rutile.*  
 3. R. obliquus, *Sphenc.*  
 4. R. pyramidalis, *Anatase.*  
 5. R. Brookianus, *Brookite.*  
 6. R. octahedrus, *Red Copper Ore.*  
 7. R. dystomus, *Pyrochlore.*

### Genus 2. JOVIUS.‡

H=6—7. G=6.5—7.1. *Contain tin.*

- Sp. 1. J. quadratus, *Tin Ore.*

### Genus 3. CERITUS.

H=5.5—6. G=3.1—3.2. *Contain cerium.*

- Sp. 1. C. rhombohedrus, *Cerite.*  
 2. C. rhombicus, *Thulite.*

### Genus 4. MELANOPHÆUS.§

H=2.5—6.5. G=2.1—5.6. *Color brown—black.*

- Sp. 1. M. triclinatus, *Allanite.*  
 2. M. Thoriferus, *Thorite.*  
 3. M. acicularis, *Orthite.*  
 4. M. flammans, *Pyrothite.*  
 5. M. obliquus, *Gadolinite.*  
 6. M. Laugierii, *Titaniferous Cerite.*  
 7. M. Mengianus, *Æschynite.*

\* Crossed like the letter X; alludes to the commonly cruciform crystallization of this species.

† Red and shining.

‡ From Jupiter, the alchemistic name of tin.

§ Μέλας, black, and φαίς, brown.

- Sp. 8. *M. quadratus*, *Erstedite*.  
 9. *M. rectangulus*, *Polymignite*.

## Genus 5. COLUMBUS.

H=5.5—6. G=5.8.—8. *Contain columbium.*

- Sp. 1. *C. hemiquadratus*, *Fergusonite*.  
 2. *C. Berzelii*, *Yttrio-Columbite*.  
 3. *C. rectangulus*, *Columbite*.

## Genus 6. URANIUS.

H=5.5. G=6.4—6.5. *Contain uranium.*

- Sp. 1. *U. amorphus*, *Pitchblende*.

## Genus 7. WOLFRAMIUS.

H=5—5.5. G=7.1—7.4. *Contain tungsten.*

- Sp. 1. *W. rectangulus*, *Wolfram*.

## Genus 8. MANGANUS.

H=1—6.5. G=3.1—4.9. *Contain manganese.*

- Sp. 1. *M. acrotomus*, *Hausmannite*.  
 2. *M. peritomus*, *Braunite*.  
 3. *M. informis*, *Psilomelane*.  
 4. *M. Cupriferus*, *Cuprous Manganese*.  
 5. *M. rhombicus*, *Manganite*.  
 6. *M. prismaticus*, *Pyrolusite*.  
 7. *M. Cobalticus*, *Earthy Cobalt*.  
 8. *M. terrenus*, *Wad*.

## Genus 9. SIDERUS.\*

H=4—6.5. G=5.2.—5.3. *Contain iron.*

- Sp. 1. *S. Chromicus*, *Chromic Iron*.  
 2. *S. fibrosus*, *Crocidolite*.  
 3. *S. Hisingeri*, *Hisingerite*.  
 4. *S. rhombicus*, *Yenite*.  
 5. *S. hæmâticus*,† *Brown Iron Ore*.  
 6. *S. rhombohedrus*, *Specular Iron*.  
 7. *S. octahedrus*, *Magnetic Iron Ore*.  
 8. *S. Zinciferus*, *Franklinite*.

\* Σίδηρος, *iron*.† Αἱματικός, *bloody*, in allusion to the color of the powder.

- Sp. 9. S. acrotomus,            *Crichtonite.*  
10. S. Mohsianus,           *Mohsite.*
- 

ORDER VIII. METALLINEA.

Genus 1. FERRUM.

- Sp. 1. F. octahedrum,       *Iron.*

Genus 2. PLATINUM.

- Sp. 1. P. cubicum,       *Platinum.*

Genus 3. IRIDIUM.

- Sp. 1. I. hexagonum,      *Iridium.*

Genus 4. PALLADIUM.

- Sp. 1. P. octahedrum,      *Palladium.*  
2. P. rhombicum,       *Selen-palladite.*

Genus 5. AURUM.

- Sp. 1. A. cubicum,       *Gold.*  
2. A. rhombicum,       *Auro-tellurite.*

Genus 6. ARGENTUM.

- Sp. 1. A. octahedrum,      *Silver.*

Genus 7. HYDRARGYRUM.

- Sp. 1. H. fluidum,       *Mercury.*  
2. H. dodecahedrum,      *Amalgam.*

Genus 8. PLUMBUM.

- Sp. 1. P. octahedrum,      *Lead.*

Genus 9. BISMUTUM.

- Sp. 1. B. octahedrum,      *Bismuth.*  
2. B. Argenticum,       *Bismuth-Silver.*

Genus 10. CUPRUM.

- Sp. 1. C. octahedrum,      *Copper.*

## Genus. 11. TELLURIUM.

- Sp. 1. T. hexagonum, *Tellurium.*

## Genus 12. STIBIUM.

- Sp. 1. S. rhombohedrum, *Antimony.*  
 2. S. rhombicum, *Antimonial Silver.*

## Genus 13. ARSENIUM.

- Sp. 1. A. rhombohedrum, *Arsenic.*

## ORDER IX. PYRITINEA.

## Genus 1. ARGYRITES.\*

H=4—5.5. G=6—9.4. *Color white, or slightly reddish.*

- Sp. 1. A. Argenteus, *Arsenical Silver.*  
 2. A. cutomus, *Nickel-Stibine.*  
 3. A. hexagonus, *Antimonial Nickel.*  
 4. A. cupricolor, *Copper-Nickel.*  
 5. A. Hoffmanni, *White Nickel.*  
 6. A. decrepitans, *Nickel-Glance.*  
 7. A. acrotomus, *Leucopyrite.*  
 8. A. peritomus, *Mispickel.*  
 9. A. octahedrus, *Smaltine.*  
 10. A. hemi-cubicus, *Cobaltine.*  
 11. A. Karsteni, *Terarsenid of Cobalt.*  
 12. A. cubicus, *Cobaltic Pyrites.*  
 13. A. Manganicus, *Arsenid of Manganese.*

## Genus 2. PYRITES.

H=3—6.5. G=4.5—6.1. *Yellowish—yellow.*

- Sp. 1. P. hexagonus, *Magnetic Pyrites.*  
 2. P. rhombicus, *White Iron-Pyrites.*  
 3. P. cubicus, *Iron-Pyrites.*  
 4. P. alliaceus, *Arsenid of Copper.*  
 5. P. crubescens,† *Variegated Pyrites.*  
 6. P. pyramidalis, *Copper-Pyrites.*  
 7. P. capillaris, *Capillary Pyrites.*

\* *Αργυρος*, silver; refers to the color.

† *Blushing*; alludes to the reddish tarnish the mineral speedily assumes on exposure.

# ORDER X. GALINEA.

## Genus 1. CYPRITES.\*

H=2.5—4. G=4.3—5.8. *Contain copper.*

- |                     |                         |
|---------------------|-------------------------|
| Sp. 1. C. cubicus,  | <i>Tin-Pyrites.</i>     |
| 2. C. tetrahedrus,  | <i>Gray Copper.</i>     |
| 3. C. rectangulus,  | <i>Bournonite.</i>      |
| 4. C. dodecahedrus, | <i>Tennantite.</i>      |
| 5. C. rhombicus,    | <i>Vitreous Copper.</i> |

## Genus 2. LUNITES.†

H=1.5—1.4. G=5.5—8.5. *Contain silver.*

- |                      |                                    |
|----------------------|------------------------------------|
| Sp. 1. L. Selenicus, | <i>Eucairite.</i>                  |
| 2. L. Cupricus,      | <i>Stromeyerite.</i>               |
| 3. L. dodecahedrus,  | <i>Vitreous Silver.</i>            |
| 4. L. Telluricus,    | <i>Telluric Silver.</i>            |
| 5. L. Auricus,       | <i>Graphic Tellurium.</i>          |
| 6. L. rhombohedrus,  | <i>Polybasite.</i>                 |
| 7. L. rhombicus,     | <i>Brittle Silver Ore.</i>         |
| 8. L. peritomus,     | <i>Antim. Sulphuret of Silver.</i> |
| 9. L. Molybdicus,    | <i>Molybdic Silver.</i>            |

## Genus 3. LYCITES.‡

H=2—3.5. G=4.5—5.8. *Contain antimony.*

- |                     |                            |
|---------------------|----------------------------|
| Sp. 1. L. diatomus, | <i>Gray Antimony.</i>      |
| 2. L. Berthieri,    | <i>Berthierite.</i>        |
| 3. L. Zinkeni,      | <i>Zinkenite.</i>          |
| 4. L. acrotomus,    | <i>Jamesonite.</i>         |
| 5. L. alliaceus,    | <i>Arsenical Antimony.</i> |

## Genus 4. PLUMBITES.

H=1.5—3. G=6.8—8.5. *Contain lead.*

- |                    |                         |
|--------------------|-------------------------|
| Sp. 1. P. cubicus, | <i>Galena.</i>          |
| 2. P. Cobalticus,  | <i>Cobaltic Galena.</i> |
| 3. P. Selenicus,   | <i>Clausthalite.</i>    |

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\* Κύπρος, *copper.*

† From *Luna*, the alchemistic name of silver.

‡ Λύκος, *a wolf*; gray antimony was called "lupus metallorum," by the alchemists.



## Genus 5. ELASMITES.\*

H=1—1.5. G=4.2.—8.2. *Structure foliated.*

- Sp. 1. E. quadratus, *Foliated Tellurium.*  
 2. E. rhombicus, *Sternbergite.*  
 3. E. rhomboideus, *Flexible Silver.*  
 4. E. hexagonus, *Molybdenite.*

## Genus 6. BISMITES.†

H=2—2.5. G=6.1—7.6. *Very fusible. Contain bismuth.*

- Sp. 1. B. rectangulus, *Sulphuret of Bismuth.*  
 2. B. acicularis, *Acicular Bismuth.*  
 3. B. rhombohedrus, *Telluric Bismuth.*

## Genus 7. ZINCITES.

G=5.5.—5.6. *Contain zinc.*

- Sp. 1. Z. flammans, *Rionite.*

## ORDER XI. ADELINEA.

## Genus 1. ACARPIA.‡

H=3.5—4. G=3.9—4.1.

- Sp. 1. A. cubica, *Manganblende.*  
 2. A. dodecahedra, *Blende.*

## Genus 2. CERASIA.§

H=1—1.5. G=4.5—4.6.

- Sp. 1. C. rhomboidea, *Red Antimony.*

## Genus 3. RUBELLA.

H=2—2.5. G=5.2—8.1.

- Sp. 1. R. obliqua, *Miargyrite.*  
 2. R. rhombohedra, *Dark-Red Silver.*  
 3. R. florida, *Light-Red Silver.*  
 4. R. peritoma, *Cinnabar.*

\* *Ελασμα*, a plate of metal.

† Contracted from bismutites, which is derived from bismutum, the Latin of bismuth.

‡ *Ακαρπος*, sterile; alludes to the difficulty of reducing the species to the metallic state.§ *Cerasus*, the cherry tree; in allusion to the color.

Genus 4. EUCHIROA.\*

H=1.5—2. G=3.4—3.7.

- Sp. 1. E. rubella, *Realgar.*  
2. E. aurea, *Orpiment.*

ORDER XII. THEIINEA.

Genus 1. SULPHUR.

- Sp. 1. S. pyramidalis, *Native Sulphur.*

CLASS III.—HYPOGÆA.

ORDER I. PITTINEA.

Genus 1. MELLIS.

H=2—2.5. G=1.5—1.6. *Transparent—translucent. Color light.*

- Sp. 1. M. pyramidalis, *Mellite.*

GENUS 2. SUCCINUM.

H=2—2.5. G=1—1.1. *Transparent—translucent. Color light.*

- Sp. 1. S. Electrum, *Amber.*

Genus 3. STEATUS.†

G=0.65. *Whitish. Crystalline.*

- Sp. 1. S. acicularis, *Scheererite.*

Genus 4. BITUMEN.

H=0—2.5. G=0.8—1.2. *Amorphous. Solid individuals opaque, or sub-translucent.*

- Sp. 1. B. fragrans, *Retinite.*  
2. B. flexile, *Mineral-Caoutchouc.*  
3. B. commune, *Bitumen.*

\* Εὐχροος, *finely colored.*

† Στερόν, *fat.*

## ORDER II. ANTHRACINEA.

## Genus 1. ANTHRAX.

*Lustre unmetallic.*

- Sp. 1. A. bituminosus,      *Bituminous Coal.*  
2. A. lapideus,      *Anthracite.*

## Genus 2. PLUMBAGO.

*Lustre metallic.*

- Sp. 1. P. scriptoria,      *Graphite.*

FOSSIL FISHES of *Connecticut and Massachusetts*, with a notice  
of an undescribed genus. By JOHN HOWARD REDFIELD,  
*Member of the Lyceum.*

*Read December 12, 1836.*

WITH the exception of the teeth and vertebræ of sharks, found in the cretaceous formation of the Atlantic coast, the fossil remains of fishes hitherto discovered in the United States, have, for the most part, been confined to the new red sandstone of the Connecticut river valley. Through this formation they are very generally diffused, having been found at Sunderland, West-Springfield, and Deerfield, in Massachusetts; and at Glastenbury, Middletown, Berlin, and Durham, in Connecticut.\* They are in most cases found in the bituminous shale, which, in character, sometimes approaches a micaceous sandstone. These interesting remains have not, however, received that degree of attention to which they are entitled from their importance in a geological point of view. Few attempts have been made to determine their species, and such accurate published descriptions as might serve for a comparison with European ichthyolites, have been entirely wanting. This circumstance, however, will not excite surprise, when we reflect that the fossil fishes of Europe, though found in all her museums and collections, have, until lately, been for the most part neglected and undescribed. Before we can venture to pronounce upon the distinctive character of the natural productions of a new world, we must, of course, be acquainted with those of the old; and it is for this reason, that in the course of investigation,

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\* I have lately been informed that Professor Shepard has discovered fossil fishes at Southbury, Connecticut, in the small basin of red sand stone, which forms part of the valley of the Housatonic.

we must so often rely upon transatlantic naturalists for a foundation on which to build our labors.

In the third volume of the American Journal of Science, Professor Silliman has described a locality of ichthyolites at Westfield, the western parish of Middletown, Conn., and also states that a specimen from this place, which he sent to Brongniart, was recognized by the latter as a species of the *Palæothrissum* of Blainville. In the sixth volume of the American Journal, and also in the "Report upon the Geology of Massachusetts," Professor Hitchcock has described the locality of Sunderland, and has given figures of two or three species found at this place, which he says probably belong to the genus *Palæothrissum*. In neither of these notices are we furnished with any distinctive description of the fishes; but the figures of Professor Hitchcock serve to show that their originals are referable to two genera widely distinct.

Dr. Dekay, some years since, read a paper before this society, upon the fossil fishes of Westfield, in which he pointed out the close affinity between the former and the existing *Esox ossesus*, or the *Lepisosteus* of French authors. This paper has never been published.

Professor Agassiz, well known for his valuable labours in this department of natural science, has, in his great work now in course of publication, described but two species of fossil fishes from the United States, and these descriptions are founded, in part, upon the drawings of Professor Hitchcock, to which we have alluded, and in part upon single specimens of each which had found their way to Europe. The first of these is seen in fig. 46, plate 11, of Hitchcock's Report, and is referred by Agassiz to his genus *Palæoniscus*, under the name of *P. fultus*, comprehending in this genus, both the *Palæoniscum* and *Palæothrissum* of Blainville. The other species described is seen in figs. 45 and 48 of the same plate, and is designated as *Eurynotus tenuiceps*. To this species I shall have occasion again to refer.

Most of the specimens accompanying this communication were found about four miles S. W. of Middletown, at a spot known by the local name of "Saw Mill Hollow." The remaining specimens are from a locality about five miles north of the latter, in the parish of Westfield. The latter sectional name has sometimes been confounded with Westfield, Mass., at which place I am not aware that any ichthyolites have been found, although its geological character differs little from that of the other towns of the Connecticut river valley. In the locality first mentioned, the bituminous shale in which the fishes are found occurs interstratified with the sandstone, and is exposed to view at the bottom of a ravine, twenty or thirty feet in depth, which has been excavated by the action of a small stream. The strata both here and at Westfield are nearly horizontal. Some layers of the shale abound, not only in remains of fishes, but also in those of vegetables, apparently endogenous, while others are nearly destitute of both. The substance of the fish, as well as that of the vegetable, is converted into carbonaceous matter, and it is observable that while the form of the scales and rays is perfectly and beautifully preserved, there are no traces of the bones remaining. According to Agassiz, this is almost universally the case with the individuals of the family *Lepidoides*, to which these belong.

The specimen, No. 9,\* is a large well marked individual of the *Palaconiscus fultus*, Agass. a species characterized by the size and strength of the anterior accessory rays of the fins. No. 10 is probably referable to the same species.

The specimens numbered 1, 2, 3, and 4, with probably most of the fragments accompanying them, are entirely distinct from the above, and constitute a genus hitherto undescribed, presenting the following characters :

*Body* fusiform, covered with rhomboidal scales, which extend obliquely across it, and parallel with its length. *Scales*

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\* The numbers refer to specimens now in the collection of the Lyceum.



middling size. *Head* rather small, presenting a finely granulated surface resembling shagreen. *Back* but slightly arched. *Pectoral fins* middling. *Ventral* small, inserted midway between pectoral and anal. *Anal* large. *Dorsal* middling, situated opposite the posterior part of the anal. *Tail* forked, equilobed.\* *Scales* extending a little upon the base of the upper lobe. All the fins have a series of raylets inserted obliquely upon the first or anterior ray, producing a serrated or denticulate appearance. In this species these raylets are very fine and close, presenting a strong contrast with those of the *Palæoniscus fultus*, where they are so long and stout as to render the term serrate inapt. The succeeding rays have an articulate appearance, and are finely subdivided toward their extremities. The following list of the number of rays in each fin may serve to give an idea of their relative size :

Pectoral, large and strong,	10 to 12.
Ventral, - - - about	8.
Dorsal, - - - - -	10 to 12.
Anal, - - - - -	20 to 30.
Caudal, - - - - -	30 to 40.

A remarkably perfect specimen of this species, from the same locality, is now in possession of the Yale Natural History Society, at New Haven, and is represented in Plate I.†

In the arrangement of Agassiz, the fish described above would be comprehended in the order *Ganoides*, and family *Lepidoides*. Its equilobed tail would assign it to the second division of the family, the *Homocerci*, as he has termed them. From seven fusiform genera now arranged in this division it is

\* This indeed is not *strictly* the case. Its structure, however, is analogous to that of the *Semionotus*, ranked by Agassiz among the *Homocerci*, and differs most decidedly from that of the true *Heterocerci*, where the scales, and probably the vertebræ, extend to the extreme point of the upper lobe.

† Among the specimens deposited with that society is a species of *Palæoniscus*, which differs not only from the *P. fultus*, but from the other numerous species of this genus, in its form and proportions, and which I have ventured to name, from this peculiarity, *P. latus*. See Plate II.

entirely excluded by the posterior position of its dorsal. It may therefore be ranked between the genera *Semionotus* and *Pholidophorus*, being analogous to both in the structure of the tail, and in its serrated fins, and to the latter in the articulation of the rays. From the situation of the dorsal fin, I have thought the name *Catopterus* to be applicable to this new genus. This name was originally applied by Agassiz to the genus *Dipterus* of Sedgwick and Murchison, but he was afterwards induced to reject it, and restore the name given by the latter. I therefore see no objection to naming the species *Catopterus gracilis*.

The specimen marked, No. 11, appears to be identical with figs. 45 and 48 of Hitchcock, named by Agassiz, *Eurynotus tenuiceps*. The genus *Eurynotus* is described by Agassiz as having the anterior rays of the dorsal large and prolonged, and the divisions of the tail unequal. In the figures of Professor Hitchcock, it is the posterior rays of the dorsal which are prolonged, and the tail represented as square and truncated. To reconcile these figures with his generic description, Agassiz has supposed the specimen of Hitchcock to have lost the long anterior rays of the dorsal, and the tail to have been inadvertently drawn truncated, instead of forked. This latter supposition was not indeed improbable, as the same error is found in the figure of the *Palæoniscus fultus*. The specimen of this species, seen in England by Agassiz, and which he has figured, is defective in a very important point, inasmuch as not only the dorsal fin, but also nearly the whole of the back and part of the tail are wanting. But the specimen before us, if it be the same species figured by Hitchcock, shows that he was correct in the representation of the dorsal,\* but, unfortunately, it can

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\* Since writing the above, I have been assured by Professor Hitchcock, that his figure is correct in the representation of the dorsal, and that its peculiar form could not have been accidental, as he had in his possession numerous individuals of this species, all of which coincide in this particular.

throw no light upon the structure of the tail, the lower part of the individual being wanting. It, however, renders it almost certain that the species cannot be comprehended in the genus *Eurynotus* as described by Agassiz, and it will not unlikely prove the representative of another new genus.

It has of late years been generally admitted that the sandstone from which these fishes are derived is of much later date than the old red sandstone, to which it was once referred, and these remains confirm this belief. The *Palaeonisci* of Europe have never been found below the coal measures, while they extend upward to the copper slate of the *zeckstein* or magnesian limestone. In the case before us, we find a species of *Palaeoniscus* accompanied by a fish, the structure of whose tail approaches that of the *Pholidophorus*, and of other fishes never found below the lias. This fact would seem to imply for this formation, even a higher situation in the series than that which is now assigned it by geologists. A careful and extended examination of the fossil fishes of this deposit, undertaken by able and experienced naturalists, is much needed, and would probably decide the question of its relative age.

REMARKS on the Structure and Affinities of the Order  
CERATOPHYLLACEÆ. By ASA GRAY, M. D.

*Read, February 20, 1837.*

THE fruit and seed of the genus *Ceratophyllum*, *Linn.* were first correctly described and figured by Gærtner,\* so long ago as the year 1778; a fact worthy of especial notice, since an erroneous view respecting the structure of the seed has been introduced into every subsequent systematic work that has fallen under my notice, in which an account of that organ is attempted. The only error in the description of Gærtner, is that of considering the proper cotyledons as a separate organ, which (in this as in a few analogous cases) he calls the *vitellus*; but it should be borne in mind that the admirable work of this author was prepared at a period when the nature of the embryo was very imperfectly understood.

L. C. Richard† first pointed out the most remarkable peculiarity in the structure of the embryo, which consists in the presence of four (apparent) cotyledons and a highly developed plumule. Jussieu,‡ who evidently knew very little of the genus, referred it to the order *Naiades*; a very heterogeneous assemblage as originally constituted, the twelve genera included in it having been since ascertained to belong to at least seven different families.

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\* *De Fruct. et Sem. Plantarum*, 1, p. 212, t. 44, fig. 2.

† *Analyse du Fruit*, 1808.

‡ *Gen. Plantarum*. p. 18.

The order *Ceratophyllaceæ*, indicated, perhaps, by Richard, was described, in the year 1821, by Samuel Frederick Gray, in a work entitled, *A Natural Arrangement of British Plants*;\* wherein it is correctly characterized, except that the radicle is said to be *superior*, i. e. to point towards the summit of the pericarp. Were this the case, it would necessarily follow, inasmuch as the seed is suspended, that the radicle should be turned towards the hilum, or, in other words, that the seed is *anatropous*; whereas, on the contrary, the ovule of *Ceratophyllum* is really *orthotropous*, and the radicle *inferior*.† This erroneous view would scarcely require such especial notice, since Gærtner has correctly described the seed in these respects,‡ were it not for the extraordinary fact of its inadvertent adoption in the *Prodromus* of De Candolle, the *Introduction to the Natural System* by Lindley, the *Ordines Plantarum* of Bartling, the last edition of the *Encyclopædia Britannica*,§ (as well as in the *Prodromus Floræ Peninsulae Indicæ Orientalis*) by Arnott, and also in the second and greatly improved edition of Dr. Lindley's *Introduction to the Natural System*, published within the past year. The genus has also been recently revised by Chamisso,|| and several new species indicated, but no notice whatever is taken of the structure of the ovule and seed.

It is not surprising that the true affinities of *Ceratophyllum* should have been overlooked, so long as its real structure was misunderstood in such an important particular. The author

\* Vol. II. p. 554.

† This important mistake can scarcely be attributed to inadvertence, since in the *Corrigenda* at the end of the volume, the author adds, "*seed upright, pendulous*," which, instead of being a correction, is an additional error.

‡ "*Semen fundo putaminis affixum . . . Embryo erectus . . . Radicula intra vitellum abscondita, infera.*"—Gærtner, *l. c.*

§ *Article Botany*, p. 108.

|| *Linnæa*, 4, p. 503.

who first characterized the order, places it next to Haloragaceæ, in which he is followed by De Candolle, who arranges it between that family and Lythariæ, to which it is annexed by Arnott\* as a sub-order; but no affinity with either has been shown, beyond a vague resemblance in habit. Bartling, and also Lindley, in the first edition of the work above cited, consider the affinities of the order to be wholly unknown, the latter, however, suggesting the query whether it be allied to Podostemeæ. In the succeeding edition, Dr. Lindley takes a new and wholly unexpected view, considering the genus as a sub-order, or degeneration, of Urticaceæ. I can perceive no particular resemblance between *Ceratophyllum* and Urticaceæ, except that the flowers of both are apetalous and diclinous, and the achenium one-seeded. It should be remarked, however, that the erect seed of the Urticeæ proper is orthotropous, as was first pointed out by Brown.† This is certainly the case in *Urtica*, *Bœhmeria*, and *Parietaria*; but the fact has been somehow overlooked by Dr. Lindley, who expressly states, in the second edition of the *Introduction to the Natural System*, that the radicle in Urticaceæ always points to the hilum!

Our attention is next directed to some observations contained in the excellent and elaborate *Mémoire sur la Génération et le Développement de l'Embryon dans les Végétaux phanogames*, by Adolphe Brongniart,‡ which, as they have the merit

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\* "Much as these suborders (Lythariæ and Ceratophylleæ) differ in appearance, we have the authority of Richard for uniting them. It must be confessed, however, that their chief great resemblance is in the persistent calyx, free from, but surrounding the fruit."—*Arnott, l. c.*—I have never been so fortunate as to meet with the observation of Richard here alluded to.

† *Appendix to Capt. Tuckey's Expedition to Congo* (1808), p. 454.

‡ Read before the *Académie des Sciences* in December 1826, and published the succeeding year in the 12th volume of the *Annales des Sciences Naturelles*.



of being the only remarks extant which throw any light upon the true affinities of *Ceratophyllum*, have also the misfortune of having been wholly overlooked by succeeding systematic writers. Under these circumstances it is proper to quote that portion of the observations of M. Brongniart which have a direct bearing upon the subject under consideration. They relate, in part, to a remarkable peculiarity in the developement of the embryo of *Ceratophyllum*, which is also inferred to occur in the genus *Nelumbium*.

“ Si on examine l'ovule du *Ceratophyllum demersum* au moment de la floraison, on trouve qu'il est suspendu au sommet de la cavité de l'ovaire, et qu'il est composé d'un seul tegument ouvert à l'extrémité opposée à son point d'insertion ; l'amande également suspendue est formée d'une membrane celluleuse, mince, transparente, et se termine par un mamelon court, formé par une sorte de petite couronne de cellules. Dans l'intérieur de cette amande, on trouve le sac embryonnaire (*the tercine* of Mirbel?) qui la remplit en entier ; il est fixé supérieurement à la chalaze,”\* &c. The passage above quoted suffices to show that M. Brongniart considers the ovule of *Ceratophyllum* as suspended and orthotropous, and the accompanying figures† so represent it. The author proceeds with an account of the embryo at its first development, when it appears as a minute green globule, situated, not within the nucule, but outside of it, and merely in contact with its orifice, from which the slightest force suffices to detach it.

“ Il continue à s'accroître pendant quelque temps en adhérent légèrement à l'extrémité du sac embryonnaire ; mais bientôt il s'en dégage et se développe dans la cavité comprise entre la membrane de l'amande et ce sac ; il se divise en trois lobes, les deux latéraux se prolongent sous forme de cornes

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\* *Ann. Sciences Naturelles*, 12, p. 251, et seq.

† *Op. cit.* t. 44.

entre le sac embryonnaire et les parois de l'amande ; le lobe moyen repousse le sac embryonnaire, s'introduit dans sa cavité, et finit par être ainsi enveloppé par le sac : il devient la gemmule composée de deux folioles inférieures opposées et de plusieurs verticelles d'autres feuilles plus petites.

" Il est inutile d'insister ici sur l'analogie qui existe entre cet embryon et celui du *Nelumbo*. Il est évident que les deux lobes externes sont analogues aux deux grands lobes arrondis de l'embryon du *Nelumbo*, que le sac qui enveloppe la gemmule est le même qui contient celle de cette plante, . . . . enfin que la gemmule, très développée de ces deux plantes contient également une première paire des feuilles opposées, et en outre d'autres petites feuilles analogues pour les dispositions aux autres feuilles de la plante."\*

A remarkable resemblance being thus indicated between the embryo of *Ceratophyllum* and that of *Nelumbium*, it becomes important to learn whether a corresponding agreement exists as to the structure of the seed in other respects. Little or no information, however, is to be derived from systematic works respecting the situation of the seed in the pericarp, and the relation of the radicle to the hilum, in *Nelumbium*. The figures of Richard† and Gærtner‡ throw some light upon the question; but, on examination of the fruit, the radicle is at once perceived to be *inferior* and the seed *suspended*, and, consequently, *orthotropous*, as in *Ceratophyllum*. The points of agreement, therefore, between the two genera chiefly consist in the simple, one-seeded ovaries, the suspended, orthotropous, exalbuminous seeds, the large and fleshy cotyledons situated outside of the membrane of the nucule, and the unusually developed plumule (consisting of a pair of primordial leaves and

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\* *Op. cit.* p. 253.

† *Analyse du fruit*, t. 5, fig. 6; and *Ann. du Museum*, 17, t. 9, fig. 50 and 57.

*Op. cit.* 1, t. 19.

a bud) enveloped by the persistent membrane of the nucule. The points of difference, such as the want of petals, the nearly sessile anthers, and the single ovary of *Ceratophyllum*, are sufficiently obvious; but they cannot be thought to weaken materially such peculiar and strongly marked affinities. The lower degree of developement, both of the organs of vegetation and fructification of *Ceratophyllum*, are, perhaps, chiefly attributable to the entirely submersed habit of the genus.

If a comparison be next instituted between *Ceratophyllum* and the order Cabombaceæ or Hydropeltideæ, affinities will be perceived, the existence of which have been, I believe, hitherto unsuspected. This order, first indicated by Richard,\* and considered by De Candolle as a tribe of Podophylleæ, has been referred to Nymphæaceæ both by Brown† and Lindley‡; it is, however, a distinct order, more closely allied to Nelumbiaceæ than Nymphæaceæ, as will be shown in the course of these remarks. It includes two genera, both peculiar to the American continent, viz. *Brasenia*,§ the only species of which (*B. peltata* of Pursh) abounds in ponds and slow-flowing streams from Canada to Florida; and *Cabomba* of Aublet, which comprises two species hitherto confounded,|| the one a

\* *Ann. du Muséum*, 17, p. 230.

† *Appendix to Capt. King's Voyage to New Holland*.

‡ *Op. cit.* ed. 2, p. 13.

§ Schreber, *Genera Plantarum* (1798), p. 372.—Hydropeltis, Michx. fl. (1803) 1, p. 321. This genus having been characterized and described by Schreber long before the Flora of Michaux was published, I see no reason for adopting the name imposed by the latter, as is done by most European botanists.

|| I subjoin the characters and synonymy of the two species.

1. *CABOMBA AQUATICA*; foliis natantibus orbiculatis; floribus luteis; ovariis (an semper?) 2. — *C. aquatica*, Aubl. *pl. Guian.* 1, p. 321, t. 124; *Richard*, *ann. muséum*, 17, p. 230, t. 5, fig. 23; *D C. syst.* 2, p. 36; *Dict. sci. nat. t. absque num.* (opt.); *Roem. & Schult. syst.* 7, p. 1379. — *HAB.* In stagnis et rivulis Cayennæ, Aublet; in Surinam, Dr. Herring.

native of Cayenne, the other of S. Carolina, Louisiana, &c. Both species have the habit of *Brasenia* as to the flowers and floating leaves, and that of *Ceratophyllum* in the filiformly dissected submersed foliage. *Brasenia* and *Cabomba* are very nearly allied; the principal difference consisting in the more numerous stamens and ovaries of the former, while in the latter the ovaries are reduced to two, three, or four, and the stamens are (as in *Ceratophyllum*) only twice the number of the sepals. The ovaries of both bear from two to three ovules, but commonly only one or two seeds are perfected. The indehiscent carpels are crowned with the persistent styles, as in *Ceratophyllum*.

In order to bring to view the real affinities of *Cabombaceæ*, it is necessary to avail ourselves of the important characters furnished by the seed, the true structure of which (particularly as compared with allied orders, in the direction of the radicle, &c.) has been almost wholly overlooked.\* The seeds of *Cabomba* and *Brasenia* resemble each other very closely. They are suspended in the pericarp, one above the other, when two are present; and a rather large roundish spot (similar to that on the seed of *Nelumbium*) is observed at the extremity opposite the hilum; which, as no raphe is perceptible, may be inferred to be

2. *CABOMBA CAROLINIANA*; foliis natantibus ellipticis lineari-oblongisve; floribus albis; ovariis 3—4.—C. Aubletii, *Michx. fl.* 1, p. 206. *Nectris peltata*, *Pursh, fl.* 1, p. 239 (*excl. syn.*). *N. aquatica*, *Nutt. gen.* 1, p. 230; *Ell. bot.* 1, p. 416, non *Willd.*—HAB. In aquis S. Carolinæ! Georgiæ! et Louisianæ!

I have seen flowers of this species with only two sepals, and two petals. Pursh, who considers the North American plant the same as that of Aublet, has, nevertheless, taken the unwarrantable liberty of changing the specific name.

\* Fine dissections of the seed, both of *Cabomba* and *Brasenia*, drawn by Richard, are published in the plates of the *Dict. des Sciences Naturelles*, from an examination of which their true structure may be deduced. It is worthy of notice that the portion of the embryo which Richard calls the gemmule in *Ann. du Muséum* 17, p. 230, t. 5, fig. 22 and 23, he here more properly considers to be the radicle.

the micropyle. The correctness of this view is demonstrated by a consideration of their internal structure. The embryo, enclosed in a peculiar covering (the thickened and persistent membrane of the nucule) lies in immediate contact with the (organic as well as geometrical) base of the seed, the residue of the cavity being filled with a rather firm albumen; the radicular extremity pointing from the hilum and towards the distant micropyle. The seeds of *Cabombaceæ* are therefore *suspended* and *orthotropous*, as in *Ceratophyllaceæ*. The principal difference between the two orders, so far as respects the structure of the ovule and seed, consists, therefore, in the less developed embryo of the former being wholly enclosed in the persistent sac of the nucule (as in *Nymphæaceæ*), and in the presence of albumen. It is evident, therefore, that the order *Ceratophyllaceæ* is almost as closely allied to *Cabombaceæ* as to *Nelumbiaceæ*, and that it should stand in the immediate vicinity of these two orders, notwithstanding the much lower development of its floral organs, and other diversities attributable to its wholly submersed habit.

As to the affinity of the order *Cabombaceæ* with *Nelumbiaceæ* and *Nymphæaceæ*, it may be remarked that it agrees with the former in its innate anthers, apocarpous ovaries, and nearly solitary orthotropous seeds; and with the latter in the presence of albumen, and of a sac enclosing the embryo. It differs from *Nelumbiaceæ* chiefly in the albuminous seeds, and less developed embryo, and in the absence of an enlarged torus; while *Nymphæaceæ*, however close the alliance, are essentially distinguished from both these families by their adnate anthers, polyspermous and syncarpous ovaries, and *anatropous* seeds.\*

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\* In both *Nymphæaceæ* and *Cabombaceæ* the embryo is commonly described as situated nearly without the albumen, at the base of the seed: there is, however, this important difference, that in the latter the embryo is placed at the true base of the seed, i. e. next the chalaza; while in the former (as in *Papaveraceæ*, &c.) it is situated at the ex-



The two species of *Ceratophyllum* admitted by Linnæus, were distinguished chiefly by the presence or absence of lateral spines. In a recent revision of the genus by Chamisso,\* six species are described, and a seventh is indicated by Dr. Wallich. If these be distinct species, as is most probable, there are doubtless others to be discovered. In this country, specimens are rarely to be met with in fruit, and consequently the genus is little known. I am indebted to Dr. Torrey for the opportunity of examining specimens with ripe fruit, collected by him, several years since, near Princeton, New Jersey, which are wholly different from any species described or figured by Chamisso. They agree, however, with a specimen from Surinam, communicated by the late Mr. Schweinitz, except that the fruit is a little larger. This plant, which I am disposed to consider an undescribed species, resembles *C. muricatum* of Chamisso more than any other, from which it differs not only in the shorter and more slender terminal, and two lateral spines of the fruit, but also more particularly in the whole margin being beset with slender spines. It may therefore be called *C. echinatum*.

In descriptions of a seed, it is important that the relation of the hilum to the chalaza and micropyle should be especially noticed; or, which amounts to the same thing, that the *spermic*,

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tremity opposite the chalaza or organic base, which, as in all anatropous seeds, occupies the geometrical apex of the seed. The radicle is approximated to the hilum in the former case, but points in the opposite direction in the latter. See a figure given by Dutrochet, in *Mém. du Muséum*, 8, t. 1, in which the embryo is plainly represented as dicotyledonous, although the author, adopting a very absurd view, attempts to prove it to be monocotyledonous. See also, especially, the admirable plate in the Memoir of Ad. Brongniart,\* illustrative of the mode of impregnation, and the structure of the ovule and seed, in *Nuphar lutea*, which incontestably demonstrates the correctness of the view of Brown and others respecting the nature of the sac which encloses the embryo.

\* *Ann. Sci. Naturelles*, 12, t. 39.

\* *Linnæa* 4, p. 503.

rather than the *pericarpic* direction of the embryo should be particularly indicated ; since the former affords characters of the highest rank, from which the latter may be inferred when considered in connexion with the direction of the seed. It is also desirable that the classification and nomenclature of ovules proposed by Mirbel\* should be extended to seeds, and generally employed in systematic descriptions, which would thus be rendered much more simple and perspicuous. Thus, if we use the expression, *seed anatropous*, it is understood that the micropyle, and consequently the radicle, is situated in the immediate vicinity of the hilum, and that the chalaza, or organic base of the seed, occupies (if the embryo be straight, or nearly so,) the portion most remote from the hilum, with which it is connected by means of a prolongation of the funiculus, called the raphe.†

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\* *Ann. Sciences Naturelles*, vol. 17.

† An instance of the separation of the raphe from the testa, in one of the two seeds of the fruit of *Seringia platyphylla*, is represented by M. Gay in the seventh volume of the *Mem. du Muséum*, t. 17.



NOTICE of the Appearance of the PINE GROSBEEK, *Pyrrhula*  
*Enucator*, in the Environs of New-York. By JAMES F.  
WARD.

*Read December 19, 1836.*

THE Pine Grosbeak has been long known as an inhabitant of the extreme northern regions of both continents. Wilson records two solitary instances of their appearance in the neighbourhood of Philadelphia, but it seems to have been very rarely observed within the limits of the United States.

Mr. J. Bell and myself have met with this beautiful bird in abundance during the present season, (from October 1836 to March 1837,) not only at Weehawken, opposite to this city, but at Tappan, twenty miles farther north, and also on the south side of Long Island, many individuals having been exposed for sale in our markets, and they seem, in fact, to have spread themselves over the whole region, more particularly where the Red Cedar, *Juniperus Virginiana*, is to be found. We have never before met with them, though actively employed in collecting for ten years past, nor have we heard of their being seen here since more than twenty years ago, when, as we are informed by Mr. E. Guillaudet, he procured in the market the pair now preserved in the American Museum in this city. We can only account for their unusual appearance by the early cold weather, and the prevalence of northerly winds during several weeks past.

They appear to feed entirely on the hard kernel of the cedar berries, not, like other birds, swallowing the whole fruit. When feeding they are remarkably tame, so that we have frequently approached, at that time, within four feet of them. They are generally met with in small parties of from four to fifteen in

company. When shot at, or disturbed, they fly off in different directions, uttering a shrill loud note or call. When single they seem very restless, repeating their call incessantly. They are very active in pursuit of food, and are frequently seen fluttering upward after berries in the same manner as the common Cedar Bird.

Among our specimens, amounting to some hundreds, many of which we dissected to determine the sex, we have observed the following principal varieties :

1. Those with the plumage, above and below, principally of a bluish gray, with the crown and rump dark olive, approaching to orange. These we take to be the young of the year.

2. Those which have these parts crimson, except that the back feathers are merely bordered with this colour, the centre being dark. According to Temminck they are the males after their first moult.

3. Those which have scarlet instead of the crimson, the males after the second moult.

4. Those in which the crown is dark brown, the rump yellow-olive, and the back cinereous, and the head a mixture of cinereous and olive-green, and all exhibiting traces, more or less, evident of the cinereous plumage. From this last circumstance it would appear that they were males in the third year, though not answering to the description given by Temminck.

5. Those in which the brown parts of the last-mentioned are bright orange-brown, especially the rump, with scarcely a faint trace of red. This appears to be an old individual, and, from dissection, we are of opinion that it is an old female.

DESCRIPTIONS of *Five Species of Vespertilio* that inhabit the  
Environs of the City of New-York. By WILLIAM COOPER.

Read February 6, 1837.

THE difficulty of determining the species of Bats is well known to zoologists. It is but recently that those belonging to Europe have been settled with some degree of accuracy, and it is not to be expected that the American species should be already so well known as to leave no room for further investigation. The *Mammalogie* of Desmarest, the latest general catalogue, contains descriptions of but three species from the continent of North America, those published by Rafinesque being considered by that author as too little known and too imperfectly described to be included in his text. Subsequent writers, especially Say, Le Conte, Harlan, have made known several others, so that the list of nominal species of Cheiroptera belonging to the United States now comprises thirteen, without including those of Rafinesque, or the *Rhinopoma carolinensis* of G. St. Hilaire, which has not been since observed, and is admitted by the author himself to be very doubtful as an American species. These thirteen species have been referred to the genera *Vespertilio*, *Nycticteus*, *Taphozous* and *Plecotus*.\*

My object in the present communication is to establish and clear up the synonymy of several species which I have observed in this vicinity, and by means of more extended de-

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\* In a report on the Zoology of North America, read to the British Association by Dr. Richardson, at their late meeting in August 1836, he assigns sixteen species of Cheiroptera to North America. Not less than twenty-four have been described or indicated under separate names by authors, of which eleven are by Rafinesque.

scriptions and comparisons than have been heretofore given, to enable the student to determine them with as little difficulty as their close resemblance will permit. The materials for doing this have been derived partly from my own researches during several years past, and partly from the liberal communications of my friends, especially Major Le Conte of this city, the Rev. Dr. Bachman of Charleston, and Doctors Pickering and Morton of Philadelphia. Through their assistance I have likewise been enabled to make some interesting observations relative to other groups of this family, which I propose to communicate as I find opportunity to prepare them for publication. I hope in this manner to lay the groundwork for a complete account of the Cheiroptera of the United States, which however much to be desired, I have not at present the requisite materials to undertake.

#### 1. VESPERTILIO PRUINOSUS.

*Vespertilio pruinus*, SAY in Long's Exp. I. p. 168. RICHARDSON, Fauna Bor. Am. I. p. 1.

*Nycticeius tessellatus*, RAF. ?

Hoary Bat, GODMAN, Am. Nat. Hist. I. p. 68. Pl. I. fig. 3. RICH. l. c.

#### *Description.*

In the general appearance of the upper parts it much resembles the common Red Bat, though more variegated in color. The ears are of moderate size and rounded, hairy above next the head, with a naked anterior lobe; the inside also hairy, except on the outer portion and round the border; tragus hairy, irregularly triangular, obtuse and arquated, with the outer angle curved forward and the inner attached. About the ears and front the color of the fur is a pale tawney, the remaining upper parts of the body including the flanks and interfemoral membrane, except a narrow edging round the latter, of a dark ferruginous, intermixed with dusky black on

the back, and all tipped with white, giving it a peculiarly hoary aspect. There is a small whitish hairy patch near the first or elbow joint of the wing membrane, and another at the base of the thumb, and in some, a third at the base of the fourth phalanx, the remainder of the membrane above being naked. Beneath, the lips and lower jaw are dusky black, throat and neck pale yellowish. At the insertion of the wings is a white mark as in *V. noveboracensis*, on each side, between which the fur is dusky brown tipped with white, like the upper parts. Lower down it becomes much mixed with pale tawney, which predominates on the flanks, and extends, forming a hairy border of half an inch wide up the membrane, to the origin of the phalanges. The remainder of the wing and interfemoral membranes naked.

The sides of the interfemoral membrane are sustained by a bony process (os calcis?) three fourths of an inch long, projecting in a curved line, and articulated with the tibia. This is not peculiar to the species, but is more than usually apparent.

Incisors  $\frac{1-1}{6}$       canines  $\frac{1-1}{1-1}$       molars  $\frac{4-4}{5-5}=30$ .

Total length	- - - - -	4 . 8 inches.
Tail	- - - - -	1 . 8 "
Fore arm	- - - - -	2 . 0 "
Tibia	- - - - -	0 . 9 "
Spread	- - - - -	15 . 0 "

I have no doubt of the identity of this Bat with the *pruinatus* of Say, as well as of Richardson, who has described its external markings with minuteness and accuracy. The difference in size remarked by Dr. Richardson in his specimen is not greater than I have observed between different specimens of the smaller species; but the dental formula given by him, is materially unlike that which I, after repeated examination, have laid down as above. In fact, this and the following species agree strictly in all the peculiarities of their dental system,



both as to the kind and number of the teeth, and form together a small natural group, the *Nycticteius* of Rafinesque, which however I have not thought it expedient to adopt as a genus, as they differ so little in habit and external characters from our other Vespertiliones. The external resemblance between these two species is also very great, so that they might be confounded without a close inspection of the markings. But the Hoary Bat is much larger; besides, as Say observes, many minor differences, of which the most conspicuous are the black lips and chin, and buff-colored cravat of this species. The hairy patch near the elbow joint I have not found in any instance in the New-York Bat, and in all the varieties of this latter there is an obvious reddish tinge, approaching sometimes to lake, on the under parts (as well as upper) of which there is no appearance whatever in the large species. The white mark at the insertion of the wings is found in both.

Though first described by Mr. Say from a specimen obtained beyond the Mississippi, there is now reason to believe that this fine species is common in the Atlantic States. Previously to the expedition of Major Long it had been captured in Philadelphia, and a specimen from Georgia has been communicated to me by Major Le Conte, and another by Dr. Bachman from Charleston, South Carolina. That from which the above description is chiefly drawn up, was shot by Mr. J. F. Ward, in the month of November, near the heights of Weehawken, in New Jersey, near this city, in broad daylight. It was hovering and fluttering about the precipice in the manner of other Bats, and occasionally darting towards the low grounds, more like a bird. I have witnessed at the same locality the similar evolutions of a Bat, probably of this species, that was flying about early one fine afternoon, though it kept below the shadow of the rocks. It is not improbable that it migrates hither from the north, Dr. Richardson having met with it in lat. 54°.

2. *VESPERTILIO NOVEBORACENSIS.*

- New-York Bat, PENN. Syn. p. 367. IDEM Arct. Zool. I. p. 184.  
*Vespertilio noveboracensis*, GMEL. Syst. I. p. 50 sp. 21. GEOFFROY  
 ST. H. in Ann. Mus. S. p. 203. HARLAN, Fauna Am. IDEM,  
 Month. Am. J. I. p. 220. GODMAN, Am. Nat. Hist. I. p. 68.  
 Red Bat of PENN. WILS. Am. Orn. VI. pl. 50 p. 60.  
*Taphozous rufus*, LESSON, Man. Mamm.  
*Nycticeia noveboracensis*, L. C. in App. to Mc Murtrie's Cuvier,  
 I. p. 441.

*Description.*

Ears short, roundish, naked on the anterior half above, and furnished merely with a thin covering of fine hairs within. Color of the fur above reddish tawney, in some individuals deep, and more properly ferruginous; in others very light-colored: the base is of a light ochreous tint, towards the end it is reddish tawney, ferruginous, or lake, and often finely tipped with white, giving it a slightly hoary or cream-colored appearance, according to the predominance of one or the other of these tints. The reddish tawney always predominates on the interfemoral membrane, which, and the feet, are densely hairy down to the very edge. The wing membranes are entirely naked above, with the exception of a small spot at the base of the thumb, and about the base of the fore finger, which in some individuals extends half an inch down each side of the phalanx, though in others there is scarcely a trace. At the insertion of the wings is a white mark, most conspicuous on the under side. Beneath, the colors are similar to those of the back, though paler; a hairy border extends along the anterior side of the membrane to the divergence of the phalanges. This part of the membrane is light yellow or tawney, while the rest is dusky both in this and the preceding species.



Incisors  $\frac{1-1}{6}$       canines  $\frac{1-1}{1-1}$       molars  $\frac{4-4}{5-5} = 30$ .

Total length	- - - -	from	3.0	to	3.8 inches.
Tail, about	- - - -	"	1.3	"	1.5 "
Fore arm	- - - -	"	1.3	"	1.5 "
Tibia	- - - -	"	0.7	"	0.8 "
Spread	- - - -	"	10.0	"	11.0 "

There has been much disagreement among authors respecting the dental system of this Bat. Say first detected the error of Pennant, who thought it had no upper incisors. F. Cuvier is the only author who has given a complete dental formula for the species, but it is not correct.\* Desmarest, following Rafinesque, arranges the *V. noveboracensis* under the genus *Atalapha*, characterized by the total absence of incisors! The above formula may be relied on, having been carefully verified by my own repeated examinations, and confirmed by the notes communicated by Major Le Conte.

The Red Bat of Pennsylvania, figured in the sixth volume of Wilson's Ornithology, is no other, as Godman has remarked, than this species, and one of the lighter colored varieties. Lesson, an industrious French naturalist, concluded from Wilson's account of its dental system, that it belonged to the African genus *Taphozous*, in which he has been followed by Cuvier in his second edition, with what reason may be inferred from our description. In effect the incisors rise so little above the gum, and even in prepared skulls the lower are so minute and so crowded together, that the most careful inspection with a lens is requisite to detect the actual number.

The Red or New-York Bat is common over a great extent of country, including the southern and middle states, and the western to near the Rocky Mountains, where it was met with by Major Long's party. During winter it remains in a torpid state in caverns and similar places, where it has been found at

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\* Dents des Mammifères, p. 48.

this season in the States of New-York and Pennsylvania. In summer it is frequently discovered in woods suspended during the day by its thumb claws to a twig behind a cluster of leaves. Its habits are in other respects similar to those of its tribe. The female is larger than the male, and produces four or five young at a birth, though others of the genus are said to have but one.

*V. borbonicus* of Geoffroy is no doubt a very different species, as well as *V. lasiurus* of Schreber, also figured by Geoffroy, unless we suppose the ears to be very incorrectly represented by these authors.

### 3. VESPERTILIO NOCTIVAGANS.

*Vespertilio noctivagans*, L. C. in App. to Mc Murtrie's Transl. of Cuv. R. An. I. p. 431.

*Vespertilio Auduboni*, HARLAN, in Am. Monthly Jour. of Geol. p. 220. pl. IV.

Silver haired, or Audubon's Bat.

#### *Description.*

Ears dusky black, rather large, naked on the anterior portion, somewhat ovate and obtuse, with two emarginations on the outer posterior border, produced by two plaits; naked within, and with the tragus moderate, ovate, and obtuse. Color above, a uniform dark dusky brown approaching to black. On the back the fur is somewhat glossy and tipped with silvery white, forming an interrupted line across the shoulders, and thence irregularly mixed down the centre of the back. Inter-femoral membrane thickly hairy on the upper part, becoming thinner downward and naked near the border. Tip of the tail projecting about a line beyond the membrane. Feet hairy. Wing membrane entirely naked. Beneath very similar to the upper parts, though the light-colored tips of the hairs are more yellowish.

Incisors  $\frac{2-2}{0}$       canines  $\frac{1-1}{1-1}$       molars  $\frac{5-5}{5-5}=34$ .

Total length	- - - - -	3.8 inches.
Tail	- - - - -	1.5 "
Fore arm	- - - - -	1.8 "
Tibia	- - - - -	0.8 "
Spread	- - - - -	11.0 "

This species is easily recognised at sight by its dark black-brown fur tipped with white on the back, and it cannot be confounded with any other of our Bats by the most heedless observer. It was first described in the year 1831, both by Major Le Conte and Dr. Harlan. The preface to the volume in which the former gentleman's description appears is dated in June; that of the latter is contained in the Journal of Geology for November of the same year. These dates are my only guide in deciding the claim to priority in favor of Major Le Conte, by adopting his name for this species.

The Silver-haired Bat is rare in our vicinity, and I have only obtained it from Long Island, where it is found during the day in hollow trees. I have seen a considerable number, which were remarkably uniform in their appearance. They are probably more common in the southern states, where they have been observed by Major Le Conte.

#### 4. VESPERTILIO CAROLINENSIS.

*Vespertilio carolinensis*, GEOFFROY ST. HILAIRE, in Ann. du Museum, 8 p. 193, sp. 2. figs. of the head and cranium pls. 47 and 48. LE CONTE, in App. to Mc Murtrie's Cuv. I. p. 431.

#### *Description.*

Ears large, naked, except near the head, and with a broad and obtuse tip curving outwards; emarginate on the outer posterior edge, tragus nearly a line broad, linear and obtuse,

and as well as the inside of the ears, destitute of hairs. All the upper parts of the head and body are covered with close soft and glossy fur, of a uniform brown color approaching to chestnut. Beneath the fur is of a pale dingy ochreous or yellowish. The remaining parts are all naked with the exception of a few scattered hairs on the toes. Last joint of the tail free. Bony process supporting the membrane very apparent.

Incisors  $\frac{2-2}{6}$       canines  $\frac{1-1}{1-1}$       molars  $\frac{4-4}{5-5} = 32$ .

Total length	- - - - -	3.8 inches.
Tail	- - - - -	1.5 "
Fore arm	- - - - -	1.8 "
Tibia	- - - - -	0.8 "
Spread	- - - - -	11.5 "

Though apparently well known to the French naturalists, no American author who has written upon these animals appears to have been acquainted with this species, except Major Le Conte, as above cited. It is common in Carolina and Georgia, and rather numerous on the south side of Long Island, whence I have frequently procured it.

# 5. VESPERTILIO SUBULATUS.

*Vespertilio subulatus*, SAY in Long's Ex. II. p. 65. RICHARDSON  
Fauna B. A. I. p. 3.

*Vespertilio lucifugus*, L. C. in App. to Mc Murtrie's Cuv. I. p. 431.  
*Atalapha fuscata*, RAF. ?

*Vespertilio domesticus*, GREEN, in Cab. N. H. II. p. 290.  
Say's Bat, RICHARDSON loc. cit.

## Description.

Ears rather large, naked except at the very base, narrowed somewhat at tip, and obtuse, tragus linear, subulate, subacute. The fur is fine and soft, of a grayish or cinereous brown color above, beneath pale yellowish mixed with dusky. The re-

maining parts are naked like the preceding species, the membranes more delicate in texture and less dusky, and the tail all engaged in the interfemoral membrane.

Incisors  $\frac{2-2}{5}$       canines  $\frac{1-1}{1-1}$       molars  $\frac{6-6}{6-6} = 38$ .

Total length	- - - - -	3.2 inches.
Tail	- - - - -	1.3 "
Fore arm	- - - - -	1.3 "
Tibia	- - - - -	0.7 "
Spread	- - - - -	9.3 "

Say's Bat, and the Carolina Bat have a strong external resemblance, and might be mistaken for each other, though there is considerable difference in size, which, with the different form of the tragus will enable the student to discriminate between the two species. The dental systems, it will be observed, are very unlike. That of *V. subulatus* is correctly described by Dr. Richardson, as I have carefully verified. From the specimens and MS. notes communicated to me by Major Le Conte, I am satisfied of the identity of this with his *V. lucifugus*, to which he also assigns the same dentary system.

This species, first made known by Mr. Say, in the notes to the account of Long's first expedition, was afterwards more minutely described by Dr. Richardson, who found it the most common species of Bat near the eastern base of the Rocky Mountains, and Mr. Townsend has recently brought it from Columbia river. A specimen obtained by Dr. Pickering in the mountains of New Hampshire, is preserved in the cabinet of the Academy of Natural Sciences, and I have seen another procured by Mr. Audubon, in Labrador. I have a specimen from Pittsburg, on the Ohio. In our vicinity, and in the city itself, it is pretty common. Major Le Conte, and Mr. Bachman, have communicated specimens from Georgia and Carolina. It is therefore, though one of the latest known, at the same time one of the most widely diffused over the United States.

Professor J. Green, has given in Doughty's Cabinet of Natural History some interesting particulars concerning a small species of Bat, *V. domesticus*, which appears from his description to be identical with this. He observed it to resort in great numbers to a deserted frame building, concealing itself during the day between the boards and the plaster walls, all entering and issuing by one small aperture. This was in western Pennsylvania.

I here wish to corroborate the remark of Professor Green, that the number of incisors, at least in our Bats, is a permanent character. I have seen nothing to favor the idea entertained by several distinguished naturalists, that any of the teeth are deciduous, but on the contrary have observed them to retain the entire number until quite worn with use.



*On Two Species of MOLOSSUS inhabiting the Southern United States.* By WILLIAM COOPER.

*Read February 20, 1837.*

THE great Prussian zoologist Pallas, in his *Spicilegia Zoologica*, Fascicle IV. p. 8, suggests the name of *Molossus* for a South American Bat, which had been previously made known by Buffon and Daubenton, giving at the same time a figure of the cranium, and pointing out some peculiarities in its dentary system which distinguished it from all the other then known species. Accordingly it became the *Vespertilio molossus* of Gmelin, in whose *Systema* it forms a distinct section, characterized as already indicated by Pallas.

M. Geoffroy St. Hilaire having undertaken a revision of the great genus *Vespertilio*, proposed in the sixth volume of the *Annales du Muséum*, the *V. molossus* of Pallas and Gmelin as the type of a separate group, for which he adopted the name of *Molossus*, and added several other species, all natives of South America. Illiger afterwards changed the name of this genus to *Dysopes*, which is also employed by M. Temminck in preference to the original name, but as the alteration seems to have been introduced without sufficient necessity, we shall with Cuvier adhere to that first proposed by Pallas.

This genus, extended so as to include the *Nyctinomus* of Geoffroy, forms the subject of an excellent memoir in the *Monographies de Mammalogie* of Temminck. *Nyctinomus* was originally founded on an Egyptian Bat, and the species were for a time supposed to be confined to Asia and Africa, until M. Geoffroy the younger himself referred to the same genus the *Molossus nasutus* of Spix, under the name of



*Nyctinomus brasiliensis*. The geographical distinction being thus done away with, and M. Temminck finding in the young *Molossi* all the characters of the *Nyctinomi* has united them in one. The *Dinops* of M. Savi, founded on a species observed in Italy, there appears reason to believe is also a species of *Molossus*, which thus proves to inhabit every quarter of the old continent.

The fact of the existence of this genus in North America, and especially so far north as the United States, has not been hitherto made known, or scarcely suspected. Among several collections of Bats from Carolina and Georgia that have been recently submitted to my inspection, I find two apparently distinct, which are clearly species of *Molossus*, and much related to some of the smaller ones so well illustrated in the work of M. Temminck.

### 1. MOLOSSUS CYNOCEPHALUS.

PLATE III. Fig. 1. the head. fig. 2.

*Nycticea cynocephala*, LE CONTE in App. to Transl. of Cuv. R. A.  
I. p. 442, sp. 3.

*Rhinopoma carolinensis*, GEOFF.? DESM. Mamm. p. 130?

### *Description.*

Color entirely sooty brown, darker above, paler beneath. Ears with a very short rounded tragus, and remarkable for being singularly and regularly crimped or fluted on their posterior half. Numerous stout bristles about the face. Muzzle broad, and lips thick and pendant, giving the ferocious expression characteristic of the genus. The wings long, and sufficiently ample; the interfemoral membrane naked, and partly sustained by a slender bony process from the hind foot, the tail extending half an inch beyond it. The tibia and fibula short and robust, and included in the membranes their whole

length. Toes nearly equal in length, the two outer rather more robust, and woolly on the outside, and all furnished with fine long hairs springing from the roots of the nails, and forming a fringe on the inner side of the foot. The fur is of a close and velvety texture, unlike the loose and long pelage of the northern *Vespertiliones*.

Incisors	$\frac{1-1}{6}$	canines	$\frac{1-1}{1-1}$	molars	$\frac{5-5}{5-5}=32$ .
Total length	- - - - -	- - - - -	- - - - -	- - - - -	3.3 inches.,
Tail	- - - - -	- - - - -	- - - - -	- - - - -	1.3 "
Fore arm	- - - - -	- - - - -	- - - - -	- - - - -	1.7 "
Tibia	- - - - -	- - - - -	- - - - -	- - - - -	0.5 "
Spread	- - - - -	- - - - -	- - - - -	- - - - -	10.5 "

I have described this Bat from a specimen furnished to me by Major Le Conte. The first and only notice of the species hitherto published is that given by this gentleman as above quoted, unless it be the doubtful *Rhinopoma carolinensis*, as supposed by my friend Dr. Pickering. There is however no appearance of any nasal appendage whatever, and it exhibits no other affinity with that genus. Major Le Conte obtained it in Georgia, where as he informs me he has observed it in large numbers together. Dr. Bachman has also sent me several specimens, and states that it is common about Charleston, though he had not observed it elsewhere. No other writers appear to have met with it. The curious crimping of the ears is found in another species from Java, the *Dysopes tenuis* of Temm. Monog. I. p. 228, pl. 19, fig. 2. The dentary formula is derived from the MS. notes communicated by Major Le Conte.

2. *MOLOSSUS FULIGINOSUS*.

Plate III. Fig. 3. The head, fig. 4.

*Dysopes obscurus*, Temm. Monog. I. p. 236, pl. XXII. fig 2.?*Rhinopoma carolinensis*, Geoff.? Desm. Mamm. p. 130?

Color sooty brown, paler beneath, ears blackish, wings dusky. Ears very broad and ample, occupying the whole side of the head, but not crimped like the preceding. Tragus small, but obvious. Muzzle prominent, face set with long hairs, lips full, but less so than in the former species. Wings long and ample for the genus, with close, scattered, short whitish hairs on the under side. The interfemoral membrane naked, and extending a quarter of an inch further than the wing membranes down the tibia, and terminating in a border, the wing membrane ending abruptly. The tail is robust, extending seven-tenths of an inch beyond the membrane. Outer toes fringed, and all furnished with a few long hairs like the former species. The fur is also similar, much resembling that of a common mole or scalops.

Incisors  $\frac{1-1}{4}$       canines  $\frac{1-1}{1-1}$       molars  $\frac{5-5}{5-5} ? = 30$ .

Total length	- - - - -	3.5 inches.
Tail	- - - - -	1.1 "
Fore arm	- - - - -	1.5 "
Tibia	- - - - -	"
Spread	- - - - -	9.6 "

I have seen but a single specimen of this species, which was sent to the Lyceum of Natural History by Dr. Boykin, of Milledgeville, Georgia, where it was procured, and it appears to be altogether unknown to naturalists. With the exception of the legs, from which the bones had been removed and the skin unnaturally stretched, the specimen is in good preserva-

tion, and so prepared that most of the teeth can be examined without injury to it.

The *Dysopes obscurus* of Temminck bears a close resemblance to our species, and may possibly prove to be the same, when better materials for comparison shall be obtained. The description of *Rhinopoma carolinensis* applies equally to this species with the former, and in the number of lower incisors it corresponds still better with it. See Desmarest, *Mamm.*

In order that naturalists may judge with what degree of propriety I have referred these Bats to the genus *Molossus*, and at the same time to complete their description, I shall subjoin the characteristics of that remarkable genus, as laid down by Temminck in his Monography, a work drawn up with great care from materials obtained by the examination of all the principal cabinets of Holland, France, England and Germany.

#### DYSOPES. Illig. Temm.

*Vespertilio*, Linn. Gmel. *Molossus*, Geoff. Cuv. Desm.

*Nyctinomus*, Geoff. Desm. *Cheiromeles*, Horsf. *Dinops*, Savi.

Incisive teeth variable in number with age,  $\frac{2}{6}$ ,  $\frac{2}{5}$ ,  $\frac{2}{4}$ , or  $\frac{2}{3}$ , or even  $\frac{4}{6}$  in youth. The adult has constantly two upper incisors more or less apart, and converging towards the point. The lower small, bilobed, much crowded, (inferiores 6 conferti, LC.), and all or part of them falling out from the excessive development of the heel (or basal process) of the canine.

Canine teeth  $\frac{2}{2}$ , the upper large, channeled in front, the lower as it were grafted on an immense heel touching, in the adult, exactly at the base, but spaced in the young, so as to lodge the incisives.

Molar teeth  $\frac{4}{6}$ ; in some species a fifth tooth, or little rudimentary point, scarcely visible, between the canine and the first upper molar (molares superiores 5, anterioribus minutis, LC.)

The total number of teeth very variable with age, so as to

serve to distinguish some species: the maximum is 32 or 34, and the minimum 24 or 26.

M. Temminck observes, that notwithstanding these differences in the teeth, there is no genus of animals, *Felis* and *Pteropus* perhaps excepted, more natural than that of *Dysopes* or *Molossus* in his view of it. He then gives the following natural character as first drawn up by Geoffroy, with some additions of his own.

“They may be easily recognised by their savage physiognomy and the whole expression of their countenance; their large head and broad muzzle had caused them to be compared to a bulldog, and designated under the name of *Molossus*; their head is moreover increased in size by the ears, inclined over, and almost resting upon the eyes, and appearing more fit to protect the organ of sight, than to favor the perception of sound; they originate very near the commissure of the lips, and after passing behind the auditory opening, they return forwards to unite together on the forehead. The greater part of the Cheiroptera have the tragus of the ear placed in the auditory opening, it forms a sort of second inner ear, which then receives the name of auricle; the *Molossi* differ from them by having this auricle situated forward and outside: it is round and pretty thick: in fine, the species of this genus may be further recognised by their tail, which is long, but with only one half engaged in the interfemoral membrane. Their tongue is soft; their muzzle not furnished with bristles; and their nose has none of those membranes or funnel shaped cavities which distinguish the Vampyres, the Phyllostomes, &c. The nostrils are a little prominent, open in front, and bordered by a raised edging. All the species have the hinder limbs very short, the fibula perfect, often as thick as the tibia, and suited by their divergence to serve for the attachment of the vigorous muscles of their feet; their toes nearly all equal, with short and very crooked nails; all have silky hairs on their toes; the outer or inner toe of the hind feet more or less free from the others,

and in some degree opposable; the thumb of the wing very short, strong and broad; the upper lips ample, with numerous folds, the nostrils placed in a muzzle projecting beyond the lips; but what is still more characteristic, is the apparent insufficiency of the flying membranes, entirely disproportioned to the volume of their large and heavy body; their wings, with narrow and deeply cut membranes, are so disproportioned in some species, that one would say that the animal could scarcely make use of them to transport himself to a distance, and that they merely served as a parachute. Their hind feet are very short, the tibia and fibula well separated for their whole length, and of nearly equal thickness; their muscles are vigorous, the toes armed with hooked nails, and the outer or inner toe free and entirely separated from the others."

This description applies with remarkable exactness to both the *Cheiroptera* now under consideration, and the resemblance becomes still more obvious when we compare them with the excellent plates given by Temminck; where may be found figured several species of similar dimensions, and otherwise closely allied to them, which inhabit Brazil and other parts of South America. From all these they may be readily known, *D. cynocephalus* by its crimped ears, and *D. fuliginosus* by its long legs and long and robust tail. The former differs moreover from all the genus in the short stiff bristles about the face, of which however a few are observed on the *D. cheiropus* of India.

What Temminck remarks relative to the insufficiency of their organs of flight is not applicable to them nor the other smaller American species. The wings are indeed narrow in comparison with the Vespertiliones, but long, and no doubt capable of a protracted flight.

I regret that I can furnish no particulars of the habits of these singular animals, but the attention of our naturalists being now turned to the subject, it is to be hoped that the most ample details concerning them will not long be wanting.



*On Two Species of PLECOTUS inhabiting the United States  
Territory. By WILLIAM COOPER.*

*Read April 3, 1837.*

ALTHOUGH the species which afford the type of this genus or group of Cheiroptera, are sufficiently striking in their appearance, and are common in the populous parts of Europe, it was not until the publication of the great work on Egypt that they were first proposed by G. St. Hilaire as distinct from the ordinary *Vespertiliones*. The only ones then known were two European, and one from the island of Timor. They are characterised, besides what is common to them with the other Bats, by the union of the base of the auricular conchs, which are always remarkably ample, and sometimes enormous. Our North American species, as we shall presently find, are further distinguished by two large fleshy appendages in the form of crests, situated between the eyes and nostrils.

Mr. Isidore G. St. Hilaire, published in March 1832, a valuable memoir on this genus, in which he enumerates eight species from various and remote parts of the globe. He subdivides them into those with ears of enormous size, (in some instances as long as the entire body,) and those which are merely ample. In the first he places four species, of which three are found in Europe, one being also common to Egypt, and the fourth brought from the southern hemisphere by Peron. Of those belonging to the second subdivision one is European, one Asiatic, and the two others American, one being from the island of Porto Rico and the other from Brazil. This last is much the largest of the known species, and the *Vespertilio*



(*Plecotus*) *Maugei* of Porto Rico, is the only one which can be suspected of any specific similarity with those we have here described. But if it be in reality identical with one of ours, the description at present extant must be both too inaccurate and too incomplete to supersede the necessity of a new one.

### 1. *PLECOTUS LECONTII*.

PLATE III. Fig. 5. the head.

*Plecotus macrotis* LC. in App. to Mc Murtrie's Cuv. 1. p. 431.

*Vespertilio Maugei*, DESM. Mamm. p. 145? IDEM Nou. Diet?

*Plecotus Maugei*, IS. GEOFF. Mag. de Zool. 1832?

Longhaired Bat, PENN. Arct. Zool. 1. p. 184. CLAYTON in Phil. Trans.

#### *Description.*

Color of the back dusky, terminated with light brown, appearing somewhat variegated if the hairs be disturbed, fur long, soft and close. The remaining upper parts are naked, with the exception of the base of ears behind, and their anterior lower border, which is fringed with fine soft hairs, and a few long fine hairs at the toe joints; the membranous parts of a uniform light brown like the back. The ears are larger than the head, and half as broad as long, the auricle less than half the length of the ears, narrow, sublinear, obtuse, and curving slightly outward. The nose round, set with numerous fine long hairs, and "a very large erect cristiform warty excrescence on each side between the eyes and the nose." The under side of the body clothed with fur, which is very dark dusky at the base with very light gray tips, which predominate over the dusky more and more downward until it becomes between the legs almost a pure white. Tail slightly projecting beyond the membrane.

$$\text{Incisors } \frac{4}{6} \quad \text{canines } \frac{1-1}{1-1} \quad \text{molars } \frac{5-5}{6-6} = 36.$$

Total length	- - - - -	3.4 inches.
Ears, (in the dried sp.)	- - - - -	1.0 "
Tail	- - - - -	1.7 "
Fore arm	- - - - -	1.6 "
Tibia	- - - - -	0.8 "
Spread	- - - - -	10.0 "

The *Vespertilio Maugei* of Desmarest, described from a specimen brought from Porto Rico by Mauge, appears from his description greatly to resemble this above described. The discrepancies, which may be owing to his having only a preserved specimen, are nevertheless too great to allow us to admit their identity without great doubts. Major Le Conte procured it in Georgia, where it appears to be tolerably common, and Dr. Bachman has also sent it to me from Charleston.

Clayton's "Bat with long hair and great ears" appears to be this species.

The name *macrotis* I have ventured to supersede, as being in nowise distinctive of the species, but in reality derived from a generic character, which in some species is still more developed than in the present. The ears being therefore rather *small* for the genus, this name becomes contradictory; and no American naturalist will regret the opportunity thus afforded of paying a well merited tribute to the discoverer of so many rare and remarkable animals of this country.

## 2. *PLECOTUS TOWNSENDII*.

PLATE 3. Fig. 6, the head.

### *Description.*

Fur on the back dusky at base, brown at the tips, with a ferruginous cast, the two tints appearing nearly uniform, and

not strongly contrasted as in the preceding species. The ears are also fringed with fur in the same manner. Beneath, the fur is of a reddish cinereous or ochreous hue, lighter towards the tail, but not in the least whitish. The nose is similar, but the fleshy crests between the eyes and nostrils appear to be still larger, and in the preserved specimens are much more conspicuous. The ears are similar, though every way more ample in the present, and presenting a different outline immediately after rising from the forehead; the auricle broader and larger. The wing and tail membranes are entirely naked, dusky, of a thicker texture, and much more strongly reticulated than in the first species.

$$\text{Incisors } \frac{4}{6} \quad \text{canines } \frac{1-1}{1-1} \quad \text{molars } \frac{5-5}{6-6} = 36.$$

Total length	- - - - -	3.8 inches.
Ears	- - - - -	1.1 "
Tail	- - - - -	1.7 "
Fore arm	- - - - -	1.8 "
Tibia	- - - - -	0.8 "
Spread	- - - - -	11.0 "

Three specimens of this very distinct new species were brought from the Columbia river by Mr. John K. Townsend, where he procured them on his late journey in company with Mr. Nuttall. It is very like the *P. Le contii*, but they may be readily known by the color of the under part of the body, besides which they differ in almost all their details of color and proportions, the present being a larger and more robust animal. Together they seem to form a small group in the genus, characterized by the double fleshy crest of the nose, which is not mentioned as occurring in any other species.

I regret being obliged to describe these two Bats from dried specimens, in which state the most characteristic marks, especially about the head, are often difficult to detect, whatever pains are taken. I have used in describing the head of the

first species, the language of Major Le Conte, from whose notes I have also copied the dental formula.

*Vespertilio megalotis*, Raf., *Plecotus Rafinesquii*, Lesson, which is described as having the auricle as long as the ears, cannot be either of our species. I am not acquainted with any other species within the United States.

*Discovery of the Vauquelinite, a rare ore of Chromium, in the United States.* By J. TORREY.

*Read April 27, 1835.*

About five years ago some specimens of lead ores were presented to me for examination by Professor Moore of Columbia College. They were taken from a mine near the town of Singsing, in the state of New-York, about one mile south of the State Prison. The mine had been wrought for silver nearly as long ago as the period of the American revolution, and has occasionally been opened since that time. In 1827 a company was formed for the purpose of working it, under the impression that it contained a rich vein of silver. In Cleaveland's mineralogy (ed. 2, p. 536) native silver is said (on the authority of Col. Gibbs) to occur at Singsing, in a very small vein. Mr. F. Cozzens obtained a specimen of the native metal in that locality in the year 1825. The company just alluded to, had the old shaft cleared out, and also made, I believe, a horizontal opening communicating with the shaft, from the side of the hill. A few barrels of ore were taken up, and the enterprize abandoned. The specimens that I examined consisted of common galena, associated with copper pyrites, crystallised carbonate of lead, malachite, and an ochery looking substance. The carbonate of lead was mostly in small prismatic crystals which had become blackened throughout, probably by the sulphuretted hydrogen disengaged from the decomposing pyrites, but they still retained their high adamantine lustre. Most of the lumps of ore, contained much of the ochery substance, which I found consisted of clay, oxide

of iron, and oxide of lead. The malachite was seldom in large pieces, but was occasionally well characterized. Mr. F. Cozzens found at the mine some fine specimens of green phosphate of lead.

On carefully examining the specimens given to me by Professor Moore, I observed a green, and a brownish-green substance, in small mammillary concretions, and also in a granular and subpulverulent form. The mammillary portions were from one to four lines in diameter. When broken they exhibited a radiating structure, and a resinous lustre. They were brittle, and yielded a greenish yellow powder. Before the blowpipe this substance grows darker and decrepitates, but preserves its green color. With borax it forms a fine green bead. Its powder boiled, with a solution of potassa, is decomposed, and the product yields a golden yellow solution. When acetate of lead is added to this solution, a copious yellow precipitate falls, having exactly the appearance of chrome-yellow. Nitrate of silver produced a crimson precipitate, and nitrate of mercury, a deep red. Some of the yellow alkaline solution, when concentrated by evaporation, yielded crystals agreeing in character with those of chromate of potassa. A few grains of the powdered mineral were mixed with fused chloride of sodium and placed in a tube-retort; on the addition of concentrated sulphuric acid, dense red vapours of peroxide of chromium were disengaged, part of which condensed into a liquid, resembling in all respects the liquid called chloro-chromic acid, by Dr. Thomson. The existence of chromic acid being now rendered certain, it only remained to determine the base or bases. A very few experiments showed that the acid was in combination with oxide of lead, and oxide of copper. Hence the mineral is a chromate of lead and copper, and is identical with the Vauquelinite of Berzelius, the cupreous chromate of lead of Cleaveland, and *plomb chromé* of Brongniart, (his *plomb chromaté* being the red chromate of lead.) The mineral was first examined by Vauquelin, and noticed by him in



his analysis of the *red lead ore of Siberia*,\* (the ore in which chromium was discovered by that celebrated chemist); but he does not appear to have regarded it as a distinct species. Cleaveland places it as a *sub-species*, after the chromate of lead. It was first, I believe, raised to the rank of a species by Leonard, and adopted by Berzelius, who notices it in his essay on the blowpipe, under the name of Vauquelinite. Most of the modern writers on mineralogy, consider it as distinct, both in chemical and physical characters from the red ore of chrome.† In the system of Mohs, Vauquelinite is still placed in the appendix which contains the *proposed species*, or such as are not yet fully established. It must occupy this place in any system based on physical characters alone, until its crystalline form can be clearly determined; and unfortunately it has hitherto only been found, either massive, or in crystals so microscopic, that they cannot be submitted to the goniometer.‡

The Vauquelinite is one of the rarest minerals known. Notwithstanding it is nearly forty years since it was discovered, there is but one undoubted locality of it recorded: this is the

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\* This mineral is not a dichromate as stated by Turner, (ed. 5. p. 570,) but a compound identical with the ordinary artificial chrome yellow. It is only red in a crystalline state, and becomes *yellow* when reduced to powder, like the *red chromate* of potassa, and some other red crystalline matters. When it was more abundant it was used as a *yellow*, not as a *red* pigment. There is, however, frequently occurring with the *red lead ore*, a distinct species, lately determined by Hermann, and called by him *Melanochroite*. It is crystallized, and its powder is of a red colour. Dr. Thomson (*Outlines of Mineralogy*, &c. 1. p. 561) regards it as a *Subsesquichromate of Lead*.

† Dr. Thomson (l. c. p. 576) says that the Vauquelinite is a compound of two atoms of chromate of lead, and one atom of oxide of copper; but Berzelius (*Traité*, 4. p. 355) calls it *chromate plumbico-cuivrique sesquibasique*, and his view of its composition is probably correct. The results obtained by the analysis of Berzelius were

Chromic acid	- - - -	28.33.
Protoxide of Lead	- - - -	60.87.
Oxide of Copper	- - - -	10.80.

‡ Perhaps even these minute crystals are merely phosphate of lead. See *Phillip's Mineralogy*, p. 350.

gold mine of Berezof, near Catharineberg in Siberia, where it accompanies the red lead ore. The green mineral found with the red chromate near Cocæs in Brazil, may be the Vauquelinite.

My motive for so long postponing an announcement of the discovery of this mineral in the United States, was merely a wish to make, first, a careful analysis of it; but I have been unable to do this, from the difficulty of obtaining a sufficient quantity of it for my experiments. After the mine was found not to be productive, the shaft was allowed to fall into ruin, and to become full of water, so that it is impossible to open the mine again without incurring considerable expense. I visited the place last year, for the purpose of exploring among the rubbish about the mouth of the mine, but I found only a few very poor specimens of the ore. A quantity of it was brought to this city some years since, but I have not been able to ascertain what became of it. As it may be several years before a new supply of the mineral can be obtained, I am induced to offer this imperfect notice to the Lyceum, hoping that it may induce some of our zealous mineralogists to visit the locality and clear out the shaft. I ought to state in conclusion, that I have examined the splendid suite of Berezof specimens in the valuable cabinet of our associate Mr. Cramer, and I found his specimens of Vauquelinite to agree in every respect with the Singsing mineral.

*An Account of several new Genera and Species of NORTH  
AMERICAN PLANTS. By J. TORREY.*

MACRANTHERA LECONTII, *Plate 4.*

Segments of the calyx entire, linear-lanceolate, scarcely one-third the length of the corolla.

*Root* perennial. *Stem* herbaceous, from two to three feet high, simple, somewhat pubescent, obtusely quadrangular. *Leaves* nearly smooth on both sides; lower ones ovate-lanceolate, opposite, petiolate, pinnatifidly lobed, with the segments entire or toothed; the upper ones oval, coarsely toothed; those at the base of the peduncles quite entire. *Flowers*, in a terminal raceme, erect. *Peduncles* about an inch long, declined at the base, and curved upward towards the summit. *Calyx* subcampanulate, deeply cleft; segments nearly equal, linear-lanceolate, from one-fourth to one-third the length of the corolla, acute. *Corolla* deep yellow, an inch long and 2—3 lines in diameter, somewhat cylindrical and incurved, of a thick and pretty firm texture; border 5-toothed; the segments ovate-oblong, spreading. *Stamens* nearly equal, at first included, but at length much exerted, scarcely declined; *filaments* woolly, rather thick; *anthers* about 3 lines long, linear, sagittate at the base, somewhat cohering, woolly. *Ovary* ovate, acute, 2-celled, many-seeded. *Style* very long and slender. *Stigma* simple, very minute. *Capsule* short, ovate, acuminate.

IIAB. In dry pine woods on the Alatomaha, in Liberty County, Georgia. *Major Le Conte!* In bogs, Middle Florida, *Dr. Chapman!* Flowers in September.

OBS. This plant was discovered about seven years ago by Major Le Conte, from whom I received specimens marked, "A new genus, allied to *Gerardia*." I proposed for it the name *Macranthera*, but refrained from publishing it, in the expectation that the discoverer himself would describe it, which however, he declined doing, kindly permitting me the favour of making known to botanists this interesting addition to our Flora.

A second species of the genus was shortly after received in a collection of plants gathered by Dr. Gates in Alabama, specimens of which were distributed by me under the generic name of *Macranthera*; but before I was prepared to publish my account of the new genus, it was described by Mr. Nuttall in the *Journal of the Academy of Philadelphia*,\* under the name of *Conrudia fuschoides*, that learned botanist not being aware that a genus belonging to the order Gesneriaceæ,† had already been called *Conradia* by Martius, and hence Mr. Bentham, in his revision of the genera of Scrophularineæ,‡ has adopted my name, which he found in Dr. Lindley's herbarium, but, by mistake, quotes it as Mr. Nuttall's. In the recent *Synopsis of the Gerardieæ*, published in the *Companion to the Botanical Magazine*, edited by Sir W. J. Hooker, this error is corrected.

*Macranthera* belongs to the tribe Gerardieæ of Bentham, in the order Scrophularineæ, and differs from *Gerardia* in its deeply parted calyx, tubular corolla with a small spreading border, and in the much exserted stamens. In the elongated stamens it resembles *Esterhazyia*,|| but in that genus the calyx is only 5-toothed, and the corolla tubular-campanulate: the habit also is very different. Like nearly all the plants of the tribe Gerardieæ, both species of *Macranthera* turn black in drying. Mr. Bentham was only acquainted with *M. fuschoides*, in which the segments of the calyx are longer than the tube of the corolla, a character which he has introduced into his definition of the genus; but in *M. Lecontei* the calyx is scarcely one-third the length of the corolla; so that the generic character must be somewhat modified.

\* Vol. vii. p. 88, t. ii. and xii.

† *Nova gen. et. sp. &c.*, a work which had not reached this country at the date of Mr. Nuttall's publication.

‡ Published in the *Botanical Register* for June, 1835.

|| *Esterhazyia* of Mikan., and *Benth. in Hook. comp. bot. mag.* p. 203; *Virgularia*, *Martius Nov. gen. et. sp.* 3, p. . . .; *Gerardia* & *Dargeria*, *Cham. and Schlecht.* (not of *Benth.*)

## AMPHIANTHUS.

**CALYX** 5-parted, and unequal. **COROLLA** tubular-infundibuliform; limb somewhat bilabiate, 4-lobed; inferior lobe somewhat larger. **STAMENS** 2, superior, included; inferior ones wanting. **STYLE** simple; stigma minutely bifid. **CAPSULE** obcordate, compressed, 2-valved, opening at the summit; valves entire. **SEEDS** numerous, naked, anatropous.—**Herbaceous**, minute, annual, throwing up filiform scapes; radical leaves linear, sessile; flowers solitary, both radical, and at the summit of the scapes.—*Nat. Ord.* SCROPHULARINEÆ.

## AMPHIANTHUS PUSILLUS.

*Root* annual; fibrous, the fibres compressed, linear. *Stem* very short, compressed, bearing a tuft of oblong-linear leaves at its summit. *Leaves* about 2 lines long, rather obtuse, entire, veinless, somewhat succulent. *Scapes* filiform and very slender, and 1—1½ inch in length, compressed, bearing a single pair of opposite oval bracts at the top. *Bracts* nearly sessile, obtuse, somewhat succulent, obscurely 3-nerved. *Flowers* very minute; radical ones 2—3 on each plant, attached to short recurved peduncles, which originate from the tuft of leaves; terminal ones solitary, nearly sessile between the bractæ (i. e. without any proper pedicel). *Calyx* 5-parted; the divisions oblong, erect, very obtuse, dotted with a number of minute glands. *Corolla* scarcely a line in length, white, straight, tapering downward; limb somewhat dilated, slightly bilabiate, 4-lobed; the lobes erect, rounded, and somewhat emarginate; the inferior one larger. *Stamens* constantly 2, superior, scarcely half as long as the corolla; filaments slender, adnate the lower two-thirds of their length, smooth; cells of the *anthers* approximated, subglobose. *Ovary* ovate, acute, compressed, surrounded at the base with a minute red disk, 2-celled, many-seeded; *style* rather larger than the ovary, subulate; *stigma* minute, bifid at the summit. *Capsule* broadly obcordate, compressed, opening along the edge at the summit; valves entire, convex; dissepiment adhering to the valves. *Seeds* 10—15 in each cell, linear-oblong, fuscous, straight; *embryo* straight; *cotyledons* oblong, distinct; *radicle* oblong.

**HAB.**—In small excavations on flat rocks, where the soil is wet during the flowering season; Newton County, Georgia. Flowers in March and April. *Dr. M. C. Leavenworth!*

Obs.—Specimens of this minute plant were sent to me in the autumn of 1836, by the discoverer, and also by Dr. Boykin, of Milledgeville, Georgia, who received them from Dr. Leavenworth. It has hitherto been found only in one spot, where it occupies a space of four or five feet in diameter, to the exclusion of almost all other plants. It resembles, at first sight, a *Callitriche*; and when overflowed, the slender scapes, doubtless become natant. The plant belongs to the order *Scrophularinæ*, and is nearly allied to *Veronica*. Its characters and habit are, however, so peculiar, that there can be little doubt of its constituting a new genus. From *Veronica* it differs in its tubular-infundibuliform, 5-lobed, and somewhat bilabiate corolla. The most remarkable character of the plant, is its two-fold inflorescence; part of the flowers being produced near the root, on short naked pedicels which originate among the radical leaves, while others are supported on long capillary bibracteate scapes. The flowers in both situations are perfect; not like those of *Amphicarpæa*, some species of *Polygala*, and many *Violæ*, of which those produced near the root are incomplete. In *Milium amphicarpon* Pursh, (of which Kunth has made a distinct genus) the subterranean flowers, as in the *Amphianthus*, are perfect, like those of the panicle.

In describing the seeds I have used the term anatropous in the sense in which it is employed by Mirbel, and as explained by Dr. Gray in his excellent *Elements of Botany*.

#### EMPETRUM CONRADII.

Branches smooth; leaves subverticillate and alternate, narrow-linear, when young glandularly hispidulous, in the adult state smooth; flowers aggregated in small capituli, terminal and axillary; scales of the perianth 5—6, obovate-oblong, smoothish; stamens 3—4; style 3—4-parted; ovary 3—4-celled.



Sempervirent, procumbent, and much branched, spreading in a circular manner; the branches subverticillate and fasciculate, ascending at the extremity, invested with a loose gray cuticle, which separates and exposes a reddish bark. *Leaves* coriaceous, about five lines long, and scarcely half an inch in breadth, slightly pointed at the tip, crowded, particularly towards the summit of the branches, mostly somewhat verticillate, but often opposite, and sometimes alternate; the upper surface bright green, under a lens, (particularly in the young leaves) appearing covered with minute short glandular hairs, when old nearly smooth; the true margin remarkably revolute; the edges nearly meeting on the under side; apparent margin minutely denticulate; petiole very short but distinct, articulated to the branches. **MALE FLOWERS** sessile in the axils of the leaves at the summit of the last year's branches. *Perianth* composed of 5 or 6 oblong, or obovate-oblong, smoothish scales, the inner ones scarcely petaloid, forming an oval bud, from the apex of which the stamens protrude. *Stamens* mostly 3, sometimes 4; *filaments* 2 lines long, slender; smooth, inserted into a minute receptacle; *anthers* roundish, two-celled, opening longitudinally on the outside, no rudiment of an ovary.—**FERTILE FLOWERS** inconspicuous, collected in very small heads at the summit of the branches. Each head composed of 10 to 12 flowers, surrounded with a number of short brownish concave bracts. Scales of the perianth about 5, obovate, obtuse; the inner ones smaller, tinged rose-color, nearly smooth. Ovary obovate, 3—4-celled; each cell containing a single ovule; style three times as long as the ovary, purplish red, cleft below the middle; the divisions somewhat spreading.

**HAB.**—Sandy fields in pine barrens near Cedar Bridge, Monmouth County, New Jersey! Also near Pemberton Mills, about ten miles from Burlington, in the same state, *S. W. Conrad, Esq.*!

**OBS.**—This very interesting addition to the botany of the United States, was first discovered by the late Solomon W. Conrad, Esq. Professor of Botany in the University of Pennsylvania, a short time before his death, but the infirm state of his health did not permit him to examine the plant. My friend Dr. Pickering, of Philadelphia, supplied me with some of Mr. Conrad's specimens, on which were a few male flowers, and afterwards the same plant without fructification, was

communicated to me by Mr. Rafinesque. A careful examination of the scanty materials placed in my hands, soon convinced me that this little evergreen belonged to the order EMPETREÆ of Nuttall, and that it was a new species of *Empetrum* itself, or possibly of *Ceratiola*; but the want of more perfect specimens, and especially of the fertile flowers, prevented my determining the genus with certainty until the present spring. About two years ago I made a visit to the locality at Cedar Bridge, pointed out to me by Mr. Rafinesque, for the purpose of obtaining the fruit. A large patch of it was found about one hundred yards south of the western tavern, near the roadside, and, on further search, a considerable quantity was discovered about four hundred yards south-east of the same tavern, in an open sandy space; but I was unsuccessful in my search for the fructification. It is a true evergreen, growing prostrate in the pure white sand of that singular region, and forming dense circular mats, a yard or two in diameter. The following year I procured a supply of the living plants, which, under the care of my friend A. J. Downing, Esq. of Newburgh, have lately produced abundance of pistillate blossoms, but, for want of the staminate flowers, they will prove abortive. The genus *Empetrum* belongs to the small natural order Empetreae, which was first indicated by Mr. Nuttall in his *Genera of North American Plants*, (published in 1818) and characterized more fully by Mr. D. Don in the *Edinburgh New Philosophical Magazine* (1826). Hooker, in the *Botanical Magazine*, (fol. 2758) has made some valuable remarks on the order, under the genus *Ceratiola* of Michaux. The only genera referred to it are *Empetrum*, *Corema*, and *Ceratiola*, the whole including but five species, which are confined to Europe and Extratropical America. Bartling (Ord. Nat. p. 372) appears to have drawn the character of the order from *Empetrum nigrum*, since it accords very well with that plant, but does not agree in every respect with *Ceratiola*; for he states the number of the stamens to be three; and both this author and

Dr. Lindley describe the fruit as from 3 to 9-celled, whereas *Ceratiola* has but two stamens, and a 2-celled, 2-seeded berry. In that genus, however, the ovary is perhaps many-celled in its young state, or rather is composed of many carpels, all of which are abortive except two, for the short style is divided into numerous stigmas, the number of which probably corresponds with that of the cells or carpels. In *Corema* the fruit is 3-celled.

Jussieu referred to *Ericæ* the only genus of this order known to him, but without being satisfied with its station. Nuttall correctly remarks that *Empetrea* resemble *Ericæ* only in their leaves, though I cannot agree with my learned friend in regarding them as closely allied to *Coniferæ*. Mr. Don, (with whom Lindley seems now to agree) thinks the order holds an intermediate place between *Euphorbiaceæ* and *Celastrinæ*.

The new species here described has a strong resemblance to the *E. album* a native of Portugal, which D. Don, on account of its 3-celled fruit, has separated from the other species of the genus, under the name of *Corema*.\* It has much the habit of *E. rubrum*, Willd.† a native of the southern extremity of South America. It differs, however, in its much narrower leaves, which are not woolly on the margin, but merely fringed with short glandular hairs, and in its nearly smooth branches. The scales of the flower also are fewer in number, and of uniform texture and appearance.

All the individuals of this species that I saw at Cedar Bridge were probably pistillate, but I could discover none of the fruit, either on the plants or in the sand about them. It may seem remarkable that an evergreen shrub should so long have escaped detection, in a region which has been so much explored by botanists as the sandy district of New Jersey; but many of the plants of those pine barrens are extremely local, and there are still large tracts of the country south of Toms

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\* *Edinb. New Phil. Mag.* l. c.

† A very good figure of this species is given in the *Botanical Register* for August 1836, t. 1783.

River, that have not yet been examined. Indeed, almost every year some additions are made to the Flora of New Jersey, by the discovery of new and rare plants, chiefly from Monmouth, Gloucester, and Burlington counties. It is not improbable that in some of the unexplored parts of the pine barrens other localities of our *Empetrum* will be found, with the ripe fruit, which is still a desideratum in its history.

In an abstract of the botanical discoveries of De la Pylaie in Newfoundland, published in the Transactions of the Linnæan Society of Paris, this zealous botanist (who never lived to complete his Flora of that large island) enumerates the *Empetrum rubrum*. Can this be identical with the South American species, or is it our *E. Conradii*? The *Schizæa pusilla* of Pursh affords a remarkable example of a plant growing in two places widely separated in latitude, and only in one intermediate spot. Gaudichaud found it in the Falkland Islands, and De la Pylaie in Newfoundland, while between these two points it has only been detected in the pine-barrens of New-Jersey.\*

### LEAVENWORTHIA.†

CALYX somewhat erect, equal at the base. PETALS equal, cuneiform, truncate or emarginate. FILAMENTS distinct, toothless. SILIQUE sessile, oblong-linear, compressed, somewhat inflated and torulose; valves indistinctly nerved. STYLE distinct, or almost wanting. STIGMA minutely bidentate. SEEDS in a single series, flattened, with a broad winged margin. FUNICULUS free.‡ EMBRYO nearly straight, or with the radicle

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\* See Ann. Lyc. vol. ii. p. 266.

† In honor of Dr. M. C. Leavenworth, of the United States army, an indefatigable botanist, who has largely contributed to our knowledge of the plants of Arkansas, Louisiana, and Florida.

‡ Adhesion of the funiculis to the septum is not a frequent character in Crucifere. De Candolle remarks, that it occurs only in *Petrocallis* and *Lunaria*. It has since been noticed in *Pterolobium*, Andr. and *Coringia*, Heist.

somewhat bent on the cotyledons: the radicle very short, conical, pointing obliquely upwards towards the hilum. COTYLEDONS orbicular. DISSEPIMENT 1-nerved, minutely reticulated; the areolæ transversely linear-oblong.—Herbaceous, annual; leaves lyrate pinnatifid; flowers on long subradical peduncles, or in loose racemes, yellow.—*Nat. Ord. CRUCIFERÆ.*

LEAVENWORTHIA AUREA, *Plate 5.*

Style distinct; embryo nearly straight.

*Root* straight, simple, descending. *Plant* 2—6 inches high. Stem at first short and simple, but at length branching from the base; the branches assurgent, smooth. *Leaves* mostly radical, about 2 inches long, (including the petioles) pinnatifid; rather thick; segments 2—4 parts, roundish-oblong, with a few obtuse teeth; terminal one much the largest, somewhat orbicular. *Racemes* 4—10-flowered. *Flowers* in the young plant, solitary, on long erect naked peduncles; in advanced specimens racemose on the short assurgent branches. *Pedicels* without bracts, an inch or more in length, filiform, spreading and curved upward. *Calyx* imbricate in æstivation\*, rather loose; sepals oblong, obtuse, tinged with purple. *Petals* yellow, tapering to a long cuneate base; the limb truncate and somewhat emarginate. *Stamens* distinct; filaments slender; *anthers* oblong. *Ovary* sessile, oblong; style short but distinct, straight; *stigma* minute, somewhat 2-toothed. *Siliqua* rather more than an inch long, and nearly 2 lines in breadth, slightly torulose, rather convex, obscurely nerved. *Dissepiment* very thin and transparent, separable into two lamina, with a waved central line, or raphe, running from the summit to the base; under a strong lens exhibiting anastomosing veins or tubes, the interstices of which are more or less linear, and transverse, or at right angles to the longitudinal nerve.† *Seeds*

\* A valvate æstivation of the sepals is very rare in Cruciferae. It was first noticed by R. Brown (*Obs. on Plants collected by Oudney, &c. p. 7.*) in *Savignia* and *Ricotia*, and Meyer has since detected it in *Coringia*, *Heist. (pl. of Caucasus, p. 191.)*

† R. Brown, who first introduced the structure of the dissepiment into characters of the genera of Cruciferae, says, he expects with much confidence that it will present great uniformity in strictly natural genera. He states, that "in many cases, though certainly not in all, he found a resemblance in this respect in more extensive groups." I have examined many Cruciferae, chiefly North Ame-



usually 5, much compressed, suspended on short rigid funiculi, approximated so that their broad membranaceous margins somewhat overlap. Embryo nearly straight from the earliest to the most mature state. The radicle points upward, at first inclined a little from the hilum, but gradually approximating towards it. Cotyledons plano-convex.

HAB.—Wet places on the priaries in the vicinity of Fort Towson, Arkansas; also in Texas, and in Jefferson County, Alabama; *Dr. M. C. Leavenworth!*

#### LEAVENWORTHIA MICHAUXII.

Style almost wanting; radicle oblique.

*Cardamine uniflora*, Michx! *fl. Bor. Amer.* 2, p. 29; *Pursh, fl.* 2, p. 439, *D. C. ! syst.* 2, p. 251.

HAB.—On rocks about Knoxville, Tennessee, *Michaux!* v. s. in herb. Mus. Paris. On wet rocks, Kentucky; very rare, *Dr. Short!*

OBS.—This species is extremely like *L. aurca*, but appears to be distinct. In habit, and in the form and size of

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rican species, without, however, finding this character at all uniform. In *Sisymbrium Sophia* and *S. sophioides*, the dissepiment is marked with two very strong nerves, extending from the base to the apex, and the tubuli are reticulated; the areolæ oblong and longitudinal. In *S. obtusangulum* and *S. Columnæ* the tubuli form distinct waved descending lines. In *S. officinale* the dissepiment is opaque and nerveless; the tubuli very minute, indistinct and descending. In *S. canescens*, Nutt. (which seems to be identical with *Erysimum pinnatum*, Walt. *Cardamine Menziesii*, D. C. and *S. brachycarpum*, Richards.) the tubuli are irregular, but a large proportion of the areolæ are linear and transverse, and the dissepiment is 1-nerved. The funiculi are also adnate. *Sisymbrium Thaliana* has no midnerve to the dissepiment, and the tubuli are reticulated, forming oblong longitudinal areolæ.

The tubuli in *Arabis ambigua*, D. C. and *A. pendula*, Linn. are descending, forming tortuous parallel lines; but in *A. Turrita* they are irregularly reticulated, and the areola amorphous. In *A. Canadensis* they are exceedingly contorted and irregularly reticulated. Notwithstanding this variety in the structure of the dissepiment, it is very constant in the same species, and the characters derived from it are doubtless often of generic importance.



the leaves and flowers, the resemblance is striking. The style, however, is very evident in the latter, but is almost wanting in *L. Michauxii*. The difference in the direction of the radicle seems also to be constant. From the appearance of the dried specimens, I am of opinion that the flowers in the second species are pale yellow. Michaux states that the peduncles are solitary and one-flowered; but I observed his specimens to be caulescent, the short assurgent stems bearing elongated one-flowered peduncles, as in the southern species.

For my first knowledge of the *L. aurea* I am indebted to my friend Dr. Short of Kentucky, who shared with me the specimens he received from Dr. Leavenworth, its discoverer. Subsequently I received some excellent specimens from Dr. L. himself. Its general appearance is that of a *Cardamine*, and I supposed it might be a species of that genus, but on examining the seed I was surprised to find the embryo almost perfectly straight, so that the plant could not be referred to either of De Candolle's great suborders of *Cruciferae*, the cotyledons being *accumbent* in *PLEURORHIZÆ*, and *incumbent* in *NOTORHIZÆ*. Indeed it is the only species belonging to this family, with which I am acquainted, in which the embryo (except in the earliest state) is straight.\*

After I had completed my description of this plant, I received from Dr. Short a good specimen of *Cardamine uniflora*, a species which I had seen in Michaux's herbarium, and which I was very desirous of examining again, and comparing with the *Leavenworthia*. It proved to be a second species of the genus, readily distinguishable by the almost entire absence of the style.

Respecting the value of characters derived from the embryo as the basis of classification in this large order, some of the most distinguished modern botanists differ in opinion. Schkuhr and Gartner were well acquainted with the principal diversities of structure which the embryo in *Cruciferae* exhibits.

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\* As in the *Rectembriae* among *Leguminosæ*.

With the latter botanist originated the terms *accumbent* and *incumbent* now so generally employed, although neither he nor Schkuhr used these characters in classifying the Cruciferae. The form and direction of the Cotyledons were first introduced into the generic characters by R. Brown, in the second edition of the *Hortus Kewensis*, (vol. iv. 1812) but not extensively, as this was not a suitable work in which to develop his views. De Candolle, in his *Systema* (1821), and in his *Mémoire sur les Crucifères* (1821), as well as in his *Prodromus*, (vol. i. 1824), adopted Brown's idea of the importance of the embryo in this family, and made it the basis of his classification, but carried it further, perhaps, than the great English botanist intended. It must be confessed that there are a few instances in which the modifications of the embryo are not even of generic importance, as in *Hutchinsia alpina* and *petraea*, noticed by Brown, the cotyledons being accumbent in one species and incumbent in the other. In *Lepidium Virginicum*, as shown in Schkuhr's figure, (*Handb.\** 2, t. 180,) and in Hooker's *Flora Boreali-Americana*, the cotyledons are accumbent, while in the rest of the genus they are incumbent. *Capsella Bursa pastoris*, which has incumbent cotyledons, is now generally admitted to be distinct from *Thlaspi*. In *Cakile*, as the genus is limited by De Candolle, there are species in which the cotyledons are not accumbent. In the figure of *C. aequalis*, as given by Delessert in his *Icones Selectæ*,† (the drawings of which were executed by Turpin,) the cotyledons are represented as *incumbent*, a circumstance which appears to have escaped the notice of De Candolle, although he quotes the figure in his *Prodromus*.‡ In *C. maritima*, C. A. Meyer§ states that he found the seed in the lower cell of the silique, having the radicle oblique or tangent to the limb of the cotyledon, while in the upper cell

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\* There called *L. Iberis*, but not the plant of Linnæus thus named.

† 2, t. 57.

‡ 1, p. 186.

§ *Enum. pl. Cauc.* p. 186. (1831)

the cotyledons were incumbent. I have carefully examined our common species of this genus, which is generally regarded as hardly a variety of *C. maritima*, but I find the cotyledons constantly accumbent. Once, indeed, I saw the lower seed with incumbent cotyledons, while in the upper they were in the ordinary state. In another instance they were incumbent in the inferior seed, and spirally twisted on the axis of the silicle in the inferior. In our common *Arabis lyrata*\* the cotyledons are obliquely incumbent, the radicle lying close by the edge.

De Candolle states in his *Mém. sur les Crucif.*, that of 970 species of this family, described in his *Systema*, he had dissected the fruits and seeds of more than 700, and yet he noticed scarcely any anomalies. He, however, overlooked the incumbent cotyledons of *Arabis Thaliana*, Linn., which Sir W. Hooker, following Gay,† has very properly removed to *Sisymbrium*, as the radicle is truly dorsal.

Some valuable observations on the embryo of *Cruciferae*, by MM. Monard and Gay, are recorded in the seventh volume of the *Annales des Sciences Naturelles*.‡ They give an account of seventeen species which deviate from the character of the suborder to which they were referred in the *Systema*. Some of these were corrected by De Candolle himself in the *Prodromus*, while others were merely placed in wrong genera. About half the plants noticed by these botanists are examples of accumbent and incumbent species existing in the same genus. Dr. Brown (in *Pl. of Oudney*, p. 6,) thinks that in dividing *Cruciferae* into natural sections, we are not to expect absolute uniformity in the state of the cotyledons; at least in the accumbent and flatly incumbent states. This learned botanist does not, however, inform us to what extent he is at present disposed

\* The tubuli of the dissepiment in this species are like those of *A. Canadensis*.

† *Ann. Sc. Nat.* 7, p. 399.

‡ Observations sur quelques Crucifères décretes par M. De Candolle dans le second volume de son *Syst. Nat. Reg. Veg.*—Par I. P. Monard, avec des notes de M. Gay. *Ann. des Sc. Nat.* 7, pp. 389–419, (1826.)

to employ characters derived from Cotyledons, in subdividing this great natural family.

I have remarked that the genus *Leavenworthia* can hardly be referred, with certainty, to either of De Candolle's grand divisions of the Cruciferae. In the mature seed the radicle is only about one-fourth the length of the cotyledons, very slightly curved, or bent a little to one side, thus showing a tendency to become accumbent. This is its form at the earliest appearance of the embryo.\* It is always directed upward (or towards the style, as the seed lies in the pod); at first turned a little *from* the umbilicus towards the opposite side of the replum, but gradually becoming erect, or even inclining towards the hilum, as the seed becomes more completely campulitropous.

It remains for me to notice the affinities of this new genus. Disregarding the peculiarity of the embryo, the only tribe of PLEURORHIZÆ, with which it can be compared, is *Arabideæ*; and among NOTORHIZÆ, it has but little resemblance to any, except to a small section (*Arabidopsis*) of the genus *Sisymbrium*, all of which have white flowers.

In the form of the silique, and in the margined seeds, it approaches some species of *Arabis*; but the valves are not nerved, and the flowers are yellow. Its resemblance to the species of *Cardamine* with pinnated leaves, particularly to *C. Ludoviciana*, (which deviates from the character of the genus in its

\* The embryo of Cruciferae, when first visible, is always straight, lying with its radicle pointing to the foramen on one side of the campulitropous seed; viz. that which would be the superior portion of it were the seed straight, with the cotyledons directed to the curved part, or *apparent* summit. As the embryo grows, it curves round, so that the cotyledons fold upon the radicle, and are thus directed to the hilum, which, in seeds of this kind, is always next the foramen. The gradual curvature of the embryo in Cruciferae is clearly exhibited in plate 42, fig. 3 of Brongniart's admirable *Mémoire sur la Génération et le Développement de l'Embryon dans les Veg. Phan.* Ann. des Sc. Nat. tom. 12. I have observed the same changes in *Arabis Turrita* and *A. ambigua*.

† *C. glauca* Spreng. (Deless. ic. 2, t. 31.) also has margined seeds.

broad silique, margined, and even winged seedst) is considerable, but it differs widely in the shape and color of the petals, the structure of the dissepiment, and in many other respects. In the broad silique and dissepiment (compared with any of the Arabideæ) it seems allied to some Alyssinæ, especially if we retain in that tribe the remarkable *Selenia* of Nuttall, which resembles our plant in the transverse areolæ of the dissepiment, pinnatifid leaves, and yellow flowers. In that genus, however, the fruit is broader, the style longer, and the seeds are truly accumbent, although the radicle is unusually short, and is directed horizontally with respect to the axis of the fruit. Upon the whole I consider it more nearly related to *Selenia* than to any other known genus.

*Description of the Plate of Leavenworthia.*

Fig. 1. A young plant of *L. aurca*, of the natural size.

2. A full grown plant of the same.

3. A flower magnified.

4. A petal do.

5. The silique laid open to show the arrangement of the seeds.

6. The replum and dissepiment, exhibiting the longitudinal nerve, and the funiculi.

7. The embryo.

8. A transverse section of the same.

9. Pistil of *L. Michauxii*.

10. Silique of the same.

11. Embryo.

OBSERVATIONS on the genus *SARRACENIA*; with an Account of a New Species. By H. B. CROOM. (Corresponding Member.)

*Read September 5th, 1836.*

HAVING enjoyed very favourable opportunities of observing the genus *Sarracenia*, and having examined all the known species in their native situations, I have been induced, while preparing a notice of an undescribed species, to extend my remarks so as to include a cursory account of the whole of this curious genus. On account of their singular structure these plants have always been objects of more than common interest; and the fact that they are exclusively North American, gives them an additional claim to the notice of our own botanists.

The genus *Sarracenia*,\* was named by Tournefort, in honour of Dr. Sarrasin, a French physician of considerable eminence, who resided at Quebec, in the latter part of the seventeenth and in the beginning of the eighteenth century, and by whom, probably, the earliest known species was sent to Europe. Dr. Sarrasin was a correspondent of Tournefort, and also of the Royal Academy of Sciences at Paris, and appears to have been a man of extensive acquirements, both in medicine and natural history. Charlevoix, in his travels, referring to the paper on the beaver, in the Memoirs of the Royal Academy, (An. 1704, p. 48) says—"On ya inséré une description anatomique du Castor, faite par M. Sarrasin, correspondant de l'Academie, Medecin du Roi dans ce pays, habile dans la medecine, dans l'anatomie, dans la chirurgie, et dans la botanique; qui a l'esprit fort orné, et qui ne se distingue pas moins dans la conseil superieure, dont il est membre, que par son

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\* Or, as it should have been written, *Sarrasinia*.



habilité dans tout qui est de sa profession. On est véritablement surpris de trouver un homme d'un mérite si universel dans une colonie."\*

Kalm† also makes honorable mention of Dr. Sarrasin, and informs us that he died at Quebec of a malignant fever, contracted at the hospital where he visited the sick.

The genus *Sarracenia* was, it appears, originally established on *S. purpurea*, the only species that extends as far north as Canada, and was placed in Polyandria Monogynia of the Linnæan artificial system. In the natural method it was somewhat doubtfully referred to Papaveraceæ, by Jussieu; but was afterwards raised to the rank of an independent order by De La Pylaie,‡ under the name of *Sarracenia*, or, as adopted by later writers, *Sarraceniaceæ*. Both Jussieu and De La Pylaie were unacquainted with the structure of the embryo in *Sarracenia*; it has, however, been observed to be dicotyledonous by Hooker,§ and also by Nuttall,|| who witnessed the germination of *S. purpurea* at Philadelphia, and describes the embryo as furnished with perfectly distinct, long and linear cotyledons.

The order Sarraceniaceæ is generally considered to be more nearly allied to Papaveraceæ and Nymphæaceæ than to any others, and is accordingly placed by Dr. Hooker between these two orders. Professor Lindley,¶ without however denying the importance of these affinities, takes a different and somewhat unsuspected view of the alliances of the order, believing it to be very nearly related to Dionæa, the dilated leaf-stalks of which only require their margins to cohere to be identical with the pitchers of *Sarracenia*. A similar peculiarity in foliage is seen in *Cephalotus*, *Nepenthes* and *Dischidia*; but the re-

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\* Charlevoix Travels, p. 97—98.

† Travels in North America, (London, 1772) 2, p. 206.

‡ Ann. Linn. Soc. Paris, 6, p. 388.

§ Flora Am. Bor. 1, p. 33.

|| Trans. Am. Phil. Soc. (new series), 4, p. 50.

¶ Introd. to Nat. System, (ed. New-York) p. 150.

semblance does not extend farther. The only thing common to all these plants is, as Dr. Brown remarks,\* that they are all dicotyledonous.

The pitchers, or tubular portion of the leaves of all the species of *Sarracenia*, it is well known, commonly contain a great number of dead insects. The manner in which they are imprisoned was first distinctly explained by William Bartram,† and is particularly illustrated in a letter from the late Dr. Macbride, of South Carolina, to Sir James E. Smith, published in the 12th volume of the Transactions of the Linnæan Society of London.‡

The water usually found in the leaves is no doubt chiefly derived from rains and dews, and is not, in any considerable degree, furnished by secretion from the plant itself, as in *Nepenthes distillatoria*, and some other plants of the kind, in which the orifice is completely closed by an operculum.§ De Candolle|| has somehow fallen into the error of supposing that the

\* *London and Edinb. Jour. Science, &c. for Oct. 1832.*

† *Travels through N. and S. Carolina, Georgia, Florida, &c. (1791 introd. p. xix.*

‡ Read in December, 1815. See also Elliott, *Sketch of the Botany of South Carolina and Georgia*, 2, p. 12.—“It may be sufficient here to remark that the throat or orifice of these leaves is generally covered with a saccharine secretion or exudation. Immediately below the throat, for the space of nearly an inch, the surface is highly polished, while the lower part of the tube is covered with hairs all pointing downwards. When an insect is attracted, in the first instance, by the secretion of the plant, or perhaps even by the water, descends, as it easily can do, along this declining pubescence, it appears incapable of ascending by its feet alone, and can only escape by a flight so perpendicular as to surpass the power of most insects. Whenever they touch the bristly sides of the tube, they are precipitated again to the bottom, and have to renew their efforts, and many insects, even of a larger size, perish in this arduous and hopeless struggle.”

§ Sic metamorphosis folii Nymphææ in folium Sarraceniae, ut ipsa aquam pluviale excipiens, et retinens extra a quas crescat; mira naturæ providentia!—*Linnaeus, Syst. Nat. (ed 12), p. 361*—an idea which seems to have been furnished by a passage in one of Peter Collinson's letters to Linnaeus, dated May 1, 1765, in these words: “The leaves of the two species of *Sarracenia* are as surprising as the flowers; for they are open tubes, contrived to collect the rains and dews, to nourish the plants in dry weather.”—*Correspondence of Linn. I. p. 66.*

|| “Tantot il diverge de la tige dès son origine, et a l'apparence d'un tube vide

leaves of *Sarracenia* have a lateral slit, which prevents their holding any considerable quantity of water. This, however, is not the case; and nothing is more common than to find the tubes in some species (especially in *S. purpurea* and *S. flava*) half or two-thirds filled with water.

The genus *Sarracenia* is, as is well known, exclusively North American, no species having been detected west of the Alleghany mountains. They are mostly found in the sphagnous swamps, savannas, &c. of the southern Atlantic states, a single species (*S. purpurea*) being, however, common in the northern states, extending even to Newfoundland and Hudson's Bay.

SARRACENIACEÆ. *De la Pylaie*, in. *Ann. Linn. Soc. Paris*, 6, p. 388, t. 13; *Hook*, *Fl. Bor. Am.* 1. p. 33; *Lindl. Introd. Nat. Syst.* (ed. 2) p. 34.

SARRACENIA, *Linn. Gen. pl.* p. 885; *Walter, Fl. Car.* p. 152; *Michx. Fl. Bor. Am. I.* p. 310; *Pursh, Fl. Am. Sept. II.* p. 369; *Nutt. Gen. N. Am. Pl. II.* p. 10; *Elliott, Bot. S. Car. and Georg. II.* p. 9.

*Sarracena*, *Tourn. Inst. Rei. Herb.*

(Character the same as of the order.)

### 1. SARRACENIA PURPUREA, *Linn.*

*S. foliis breviusculis assurgentibus, tubo ventricosso gibbo, fauce coarctata, ala latissima arcuata, lamina erecta subreniformi—cordata intus pilosa, flore purpureo.*

*Sarracenia purpurea*, *Linn. Sp. Pl.* p. 728; *Walter, Fl. Car.* p. 152; *Michx. Fl. Bor. Am. I.* p. 310. *Pursh, Fl. Am. Sept.* p. 367; *Elliott, Bot. S. Car. and Georg. II.* p. 9.

fendu sur le coté; c'est ce qui a lieu dans les *Sarracenia*, soit q'on y considere le tube comme formé par un pétiole foliacé ou par le limbe de la meme feuille; ce tube de *Sarracenia* ne peut contenir que peu ou point de liquide a cause de la fissure latérale."—*Organographie Vegetale*, I. p. 319.

*Coilophyllum Virginianum* brevior folio. *Morris. Hist. III. p. 533.*

*Bucanephyllum Americanum*. Plunk. *Amalth. t. 376, f. 6.*

*Sarracenia foliis gibbis*, *Gronov. Virg. 164.*

*Icon. Bot. Mag. t. 849*; *Miller, Dic. I. t. 241*; *Catesby, Car. II. t. 70*; *Plunkenett, Amalth. t. 376, f. 6.*

**HABITAT.** From Hudson's Bay to the Gulf of Mexico. Hudson's Bay, *Michaux*; Newfoundland, *De la Pylaie*; Canada, *Dr. Richardson, Drummond*; Massachusetts, *Prof. Hitchcock*; New-York and New-Jersey, *Dr. Torrey*; Virginia, *Gronov*; Carolina, *Catesby*; near Newbern N. C!; near Wilmington, N. C. *Mr. Curtis*; middle district of Carolina and Georgia, *Elliott*; near Charleston S. C! Florida and Alabama!

**OBSERVATIONS.** Leaves 4—8 inches long, tubular, bulging in the middle, arcuate, ascending. Wing very broad and arcuate. Lamina erect, very hairy on the inner surface. Tube often nearly filled with water. Scape about a foot high, bearing, as in all the species, a single nodding flower, which in this is large and purple.

This is, of all the species, the best known and the most extensively diffused. It is that on which the genus was founded, according to the *Encyclopedia of Plants*, having been known in Europe as early as 1640.

*S. heterophylla* of *Eaton* is probably nothing more than *S. purpurea*; but has the plant yellow flowers?

## 2. *SARRACENIA RUBRA*, *Walter.*

*S. foliis longiusculis erectis gracilibus, tubo sursum sensim dilatante, ala angusto-lineari, lamina erecta mucronata basi subcoarctata, flore rubro—purpureo.*

*Sarracenia rubra*, *Walt. Fl. Car. p. 152*; *Willd. II. p. 1150*; *Elliott, Bot. S. Car. and Georg. II. p. 10*; *Hooker, Ex. Fl. p. 13.*

*Icon. Hooker, Ex. Fl. t. 18.*

HABITAT. Middle country of South Carolina. *Elliott*. Common in swamps between Aiken, S. C. and Richmond County, N. C., flowering in May! Buncombe\* County, North Carolina. *Mr. Curtis in lit.*

OBSERVATIONS. Leaves 10—18 inches long, rather slender, reticulated with purple veins. Tube enlarging regularly towards the summit, like a trumpet. Lamina erect, clothed with very fine hair on the inner surface. Wing narrow and linear. Scape much longer than the leaves. Flower reddish-purple.

Pursh certainly erred when he united this species with *S. psittacina* of Michaux, an error in which he was followed by Nuttall and some others. Elliott and Hooker have both remarked the incongruity of the two species as described, especially in the "recurved, fornicated appendix" of the latter. Nor are the leaves of *S. rubra* short for this genus, as those of *S. psittacina* are said to be.

### 3. *SARRACENIA DRUMMONDII*, *nobis t.*

*S. foliis longis erectis, tubo sensim dilatato, ala angustolineari, lamina erecta suborbiculari intus pilosa tuboque superne venis colaratis reticulata, interstitiis albis, flore purpureo.*

HABITAT. Near the town of Appalachicola in Florida. Abundant on the western borders of the Appalachicola river, below Ocheese. *Dr. A. W. Chapman, in lit.* Flowers in April.

OBSERVATIONS. Leaves long, (20—30 inches) erect, trum-

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\* This is the most western locality yet ascertained.

pet-shaped. Wing very narrow and linear. Lamina nearly orbicular, contracted at base, and thickly clothed on the inner surface with conspicuous hairs. The upper part of the tube and the lamina, on every side, reticulate with purple veins, with the interstices white; the maculation larger and more diffused than in *S. Variolaris*.

The tube of one of the specimens which we have of this species contains, besides other dead insects, a large *butterfly*, (*Papilio Turnus*)!

I have described this species from specimens in the herbarium of Dr. Torrey, who received a few leaves, without flowers, from Sir William Jackson Hooker, to whom they had been sent by Drummond, from Appalachicola in 1835. In the spring of the present year (1836) Dr. A. W. Chapman obtained the plant in flower in the neighbourhood of Appalachicola, and gave a specimen to Dr. Torrey, by whose kindness I have been permitted to describe it here.

From the very hairy lamina or appendix of this plant, its reticulate veins, and the size and form of its leaves, a suspicion was at first excited that this might be Elliott's *S. Catesbæi*, but its purple flower and remarkable maculation entirely separate it from that plant, which is no other than a variety of *S. flava*.

#### 4. *SARRACENIA PSITTACINA*, Michaux.

*S. foliis brevibus reclinatis venoso-reticulatis albo-maculatis, tubo venticoso, ala sursum subcuneatim latescente, lamina recurvata subgloboso—inflata carinata mucronata tubum pene claudente, ore subrotundo parvo, flore purpureo.*

*Sarracenia psittacina*, Mich. *Fl. Bor. Am. I. p. 311.*

*Sarracenia calceolata*, Nutt. *Trans. Am. Ph. Soc. IV. p. 49.*

*Sarracenia pulchella*, Croom in Sill. *Journ. Oct. 1833.*

Icon, *Trans. Am. Phil. Soc. IV. pl. 1.*



HABITAT. Georgia and Florida. "Ab urbe Augusta Georgiæ and Floridam." *Michaux*. Tatnall County, Ga., and 10 miles west of Tallahassee, Florida. *Nuttall*. Near Quincy, Fla. *Dr. A. W. Chapman*. Between the Tologie and the Appalachicola, in wet pine woods! Flowers March to April.

OBSERVATIONS. Leaves 3—4 inches long, reclinate, with reticulate purple veins, and whitish diaphanous spots, like those of *S. variolaris*, but smaller. The autumnal leaves are longer, and vary somewhat from the vernal in form and appearance, especially in the longitudinal *wing*. They are about six inches in length. Tube ventricose. Lamina very curiously incurved and fornicated, almost closing the tube, and looking not unlike the head of a parrot, as *Michaux* has remarked. Scape about a foot high. Flower reddish-purple. Even this species, notwithstanding the smallness of the aperture of the tube, acts as a fly-catcher. Indeed when they have once entered through this small orifice, their condition is more hopeless than in any of the other species.

This species of *Michaux* was long lost to our botanists. Pursh united it with *S. Rubra* of Walter, the incongruity of which is evident. Still, as the plant had not been found since *Michaux*'s time, *Nuttall*, who adopted the error of Pursh, when he at length found the plant, considered it as new, and described it in the work we have already referred to. Influenced by the opinions of others, and not having seen the description of *Nuttall*'s *S. calceolata*, I mentioned it as new under the name of *S. pulchella*. But I am now satisfied of its identity with *S. psittacina* of *Michaux*, whose description agrees accurately with this plant. Their Habitat also agrees.

##### 5. *SARRACENIA VARIOLARIS*, *Michaux*.

*S. foliis longiusculis suberectis, tubo paulo ventricososuperne dorso maculato, ala lineari—lanceolata, lamina incurvata fornicata, flore flavo.*

*Sarracenia variolaris*, *Mich. Fl. Bor. Am. I. p. 310.*

*Sarracenia minor* *Walt Fl. Car, p. 153!*

*S. adunca*, *Smith, Ex. Bot. I. t. 53.*

*Icon. Bot. Mag. 1710; Loddige, Bot. Cab. t.*

**HABITAT.** From South Carolina to Florida. *Michaux.* Around the pine-barren ponds along the sea-coast of South Carolina and Georgia. *Elliott.* Common in Middle Florida and the southern parts of Georgia, in wet pine woods! Abundant near Charleston, S. C! Flowers *March—April.*

**OBSERVATIONS.** Leaves 12 to 18 inches long, nearly erect, a little bent or reclinate near the base. Tube a little ventricose, curiously marked on the back, near the summit, with whitish diaphanous spots. Wing somewhat broad. Lamina arched, vaulted and incurved over the throat of the tube. Flowers yellow.

## 6. SARRACENIA FLAVA, *Linn.*

*S. foliis longissimis erectis tubo sensim dilatato, ala lineari angustissima, lamina erecta basi coarctata lateribus retroflexis, flore flavo.*

*Sarracenia flava*, *Sp. Pl. II. 1150; Walter, Fl. Car. p. 153; Michx. Fl. Bor. Am. I. p. 310; Pursh, Fl. Am. II. 367; Elliot, Bot. S. Car. and Georg. II. p. 10.*

*Sarracenia Catesbæi*, *Ell. Bot. S. Car. and Georg, II. p. 11.*

*Coilophyllum Virginianum*, *Morris. Hist. II. p. 533.*

*Bucanephyllum elatius*, *Plunk. Amalth.*

*Sarracenia foliis rectis*, *Gronov. Virg. 164.*

*Icon. Bot. Mag. 780; Cates. Car. II. t. 69; Plunk. Amalth. t, 376, f. 5.*

**HABITAT.** From the southern borders of the Chesapeake Bay to the Gulf of Mexico. Southampton County, Va. *Dr. Pickering.* Virginia, *Gronov.* Near Newbern, N. C.! Near Wilmington, N. C., *Mr. Curtis.* Abundant in the middle

districts of Carolina and Georgia, *Ell.* Near Charleston, S. C. !  
Common in the wet pine woods of Middle Florida !

OBSERVATIONS. Leaves very long, 24 to 36 inches, erect, trumpet shaped. Wing very narrow, linear. Lamina erect, mucronate, with the sides at base usually reflected. This is the largest species of the genus. In the savannas of North and South Carolina I have sometimes gathered the leaves full three feet long, which is precisely the length assigned by Catesby to the leaves of this species.

In the southern states, where this species is common, its leaves are known by the appropriate name of "*trumpets.*" Elliott's *Sarracenia*, *Catesbæi*, is, as I have ascertained by the inspection of his herbarium, scarcely even a variety of this species, and differs from the ordinary form of the plant only by the more conspicuous veins and pubescence of the lamina. It agrees very well with the figure in Catesby above-cited, which Elliott refers to his *S. Catesbæi*, while both Willdenow and Pursh quote the same figure as belonging to *S. flava*.

MELANTHACEARUM *Americæ Septentrionalis Revisio.*  
Auctore ASA GRAY.

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ORDO MELANTHACEÆ. *R. Brown.*

Melanthaceæ *Lindl. nat. syst. ed. 2. excl. § Parideæ et gen. nonnul.*  
Colchicaceæ *D. C. fl. Fran. ed. 3. ; Bartl. ord. nat. etc.*  
Veratreæ *Salisb. in hort. trans. ; Agardh aphor. etc.*  
Juncorum gen. *Juss.*

CALYX et COROLLA consimiles, ferè æquales, plerumquè persistentes, perianthlun hexamerium liberum sæpissimè petaloideum constituentes; foliolis plùs minùs distinctis vel unguibus in tubum gracilem coalitis, æstivatione sæpè involutis.

STAMINA 6 (in Plecâ 9—12); filamentis persistentibus. ANTHERÆ biloculares vel pseudo-uniloculares, extrorsæ, interdum innatæ, rarissimè introrsæ.

OVARIA 3 (rarius abortu unica), sæpiùs pluriovulata, intùs plùs minùs coalita: styli totidem distincti, introrsùm stigmatosi seu stigmatibus simplicibus desinentes. OVULA anatropa, plerumquè biseriata, ascendentia.

CAPSULA membranacea vel coriacea, trigastra, sæpiùs tripartibilis, carpellis suturâ ventrali dehiscentibus, nunc dehiscentiâ loculicidâ.

SEMINA 5—20 (rariùs 2) in carpellis singulis, sæpè compressa et testâ membranacæ (nec atrâ nec crustacæ) undiquè marginata aut utrinquè appendiculata. ALBUMEN carnosum. EMBRYO parvus, in albumine inclusus, juxta hilum positus.

HERBÆ cormo vel bulbo tunicato (quandoque rhizomate horizontali) perennantes; *radicibus* fibrosis, interdum crassis fasciculatisque. *Caulēs* simplices, sæpè scapiformes, nunc abbreviati aut hypogæi. *Folia* graminea, cyperoidea, vel plantaginea, rariùs conduplicata vel æquitantia, basi caulis sæpè conferta, supernè alterna, plùs minùs amplexantia seu vaginantia. *Flores* hermaphroditi seu abortu polygami, rariùs subdioici, racemosi vel spicati (racemis simplicibus vel compositis), nunc solitarii.

Obs. I. Genera infra posita, hùc doctissimo Lindleyo et aliis collocata, ex hùc ordine depello; scilicet:

1. *Nolina Michx.* quæ ob antheras introrsas et stylos (vix ullos) coalitos, necnon pedicellos sæpè aggregatos, in medio articulatos, *Asphodeleis* potiùs referenda. Fructum maturum et semina non vidi.

2. *Disporum Salisb.* (genus primùm præclarissimo Brownio indicatum\*), *Drapiezia, Blum.* *Schelhammera R. Brown.* et forsàn *Tricyrtis, Wall.* (= *Compsoa Don*), omnia antheris extrorsis, quæ, cum *Uvulariâ*, sectionem parvam ordinis (seu classis) *Liliacearum* (prope *Convallarineas*) constituere videntur.

3. *Paris, Trillium, Medeola, Myrsiphyllum.* (*Parideæ Lindl. Trilliaceæ D. C.*) Hæc, necnon *Convallaria, Strep-topus*, etc., ad *Smilaceas* a cl. Brownio referebantur, sed dissident in habitu, foliorumque structurâ (cl. Lindleyo nuper monentet), et maximè seminibus anatropis†, nunquam orthotropis modo seminum *Smilacis* et *Ripogoni*. *Melanthaceis* accedunt stigmatibus stylisve discretis, etc., sed diversa sunt

\* *Prodr. fl. Nov. Holl.* 1, p. 310.

† *Nat. syst. ed. 2*, p. 358.

‡ Semina in plerisque *Trilliis* toto raphide inserta sunt, ideoque quasi heterotropa videntur.

pericarpio baccato, antheris introrsis, et habitu : equidem statio propria est inter Liliaceas juxta Uvulariam et Convallariam.

OBS. II. Perianthium et filamenta (necnon styli et stigmata) in omnibus Melanthaceis Boreali Americanis persistentia sunt ; in aliis nonnullis decidua.

OBS. III. Melanthaceæ in tribus duas faciliè dividi possunt : scil.

1. COLCHICEÆ ; acaulescentes ; floribus plerumquè ex cormo ortis, pedicellis hypogæis ; foliis perianthii longissimè unguiculatis, sæpiùs in tubum gracilem coherentibus ; stylis gracillimis quandoque plùs minùs coalitis.

2. MELANTHEÆ ; caulibus scapiformibus, sæpè foliosis ; floribus racemosis spicatisve ; foliis perianthii distinctis vel breviter coalitis, unguibus brevibus aut nullis ; stylis brevibus, stigmatibusve ferè semper distinctis.

Hæ Asphodeleis, illæ, habitu Croci, Iridaceis magis conveniunt. Tofieldiæ § *Triantha* præclarè Melanthaceas Juncaceis conjungit\*.

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\* Vid. adnot. sub *Tofieldiâ*.



CONSPECTUS GENERUM BOREALI-AMERICANORUM,

1. COLCHICEÆ.

1. LEUCOCRINUM, *Nutt.* Perianthium hypocrateriforme. Styli coaliti, stigmatibus lamellato-dilatatis, Radix fasciculata,

2. MELANTHEÆ.

§ 1. *Antheræ pseudo-uniloculares, post dehiscuntiam clypeolatae.*

\* *Perianthii foliola biglandulosa: styli stigmatibus simplicibus desinentes.*

2. ZIGADENUS, *Michx.* Flores hermaphroditi. Foliola perianthii exungiculata. Filamenta libera.

3. LEIMANTHIUM, *Willd.* Flores plerique polygami. Filamenta unguibus perianthii foliorum accreta.

\*\* *Perianthii foliola eglandulosa, exungiculata: styli stigmatibus simplicibus desinentes.*

4. VERATRUM, *Linn.* Flores polygami, in racemis compositis. Stamina perianthio breviora.

a. *Perianthii foliola obtusa, basi plus minus angustata. Folia dilatata, plicato-nervosa, caulem vaginantia.*

b. *STENANTHIUM.* Perianthii foliola lanceolata, acutissima, basi ferè dilatata, staminibus multò longiora. Folia angustè linearia caulem haud vaginantia.

5. AMIANTHIUM. Flores hermaphroditi, racemis simplicibus compositivæ. Stamina perianthio plerumquè longiora.

6. *SCHÆNOCAULON*. Flores (minimi) in scapum pergracilem nudum arcè spicati. Stamina perianthio longiora.

§ 2. *Antheræ biloculares.*

*Obs.* Perianthii foliola in generibus Americanis hujus sectionis exungiculata et eglandulosa sunt.

\* *Stigmata sessilia (scu styli intus prorsus stigmatosi).*

7. *XEROPHYLLUM*, *Michx.* Flores hermaphroditi. Capsula loculis dispermis. Filamenta infernè valdè dilatata.

*HELONIAS*, *Linn.* Filamenta infernè haud dilatata. Capsula polysperma.

*a.* Flores hermaphroditi. Capsula obcordata, tricocca.

*b.* *CHAMÆLIRIUM*, *Willd.* Flores dioici. Capsula ovoidea.

\*\* *Styli stigmatibus simplicibus desinentes. Folia equitantia.*

9. *TOFIELDIA*, *Huds.* Flores hermaphroditi, involucri calyculati.

*a.* Flores simpliciter racemosi vel spicati, modo florendi centripeto. *Antheræ introrsæ.*

*b.* *TRIANTHA*, *Nutt.* Flores plerumquè ternatim fasciculati, modo florendi centrifugo. *Antheræ innatæ.* Semina urinq; subulata.

10. *PLEEA*, *Michx.* Flores hermaphroditi, bracteis spathaceis. Stamina 9—12; antheris versatilibus introrsis, Semina apice setaceo-caudata.

## TRIB. 1. COLCHICEÆ.

1. LEUCOCRINUM, *Nutt.*

FLORES hermaphroditi, ex caule brevissimo subterraneo orti. PERIANTHIUM hypocrateriforme; tubo gracillimo, prælongo; laciniis ovalibus limbi patentis æqualibus. STAMINA 6, æqualia; filamentis tubo perianthii ferè ad apicem adnatis. ANTHERÆ lineares, biloculares (basin affixæ) introrsæ. OVARIUM globoso-ovatum, carpellis tribus pluriovulatis concretis compositum: styli filiformes, vix ad apicem coaliti; stigmatibus lamellato-dilatatis. CAPSULA membranacea (haud inflata), subglobosa, loculis 5—6-spermis. SEMINA (biseriata) subglobosa.

RADIX fasciculata, carnosa: *caulis* vix ullus: *folia* angustè linearia: *flores* albi, brevè pedunculati, spathis angustissimis bracteati.

LEUCOCRINUM MONTANUM, *Nutt. ined.*

*Radix* e fibris plurimis crassitie pennæ Corvi. *Folia* plurima, (ut videntur) crasiuscula, plana, 8 unc. longa, vix 2 lin. lata, acutiuscula. *Flores* (6—8) foliis multò breviores; pedunculis omnibus radicalibus, unifloris, demùm ferè uncialibus. *Perianthii* tubus persistens, 2—3 unc. longus, filiformis; limbus magnitudine florum *Ornithogali umbellati*. *Stamina* perianthium vix æquantia; antheris linearibus. *Stylus* staminibus paulò brevior; stigmatibus ferè obcordatis. *Capsulæ* (imature) vix supra terram, membranacæ, 3—4 lin. latæ, (ut videntur) loculicidè dehiscentes, stylo et perianthio persistente coronatæ. *Semina* ut in Colchico.—Floret Aprili.

HAB. In planitiibus altis fluminis Platte, *Nuttall!*

Obs. Genus a Colchico diversum, stylis coalitis, antheris adnatis, et capsulis membranaceis non inflatis; a Bulbocodio, unguibus perianthii totis concretis, etc.; ab utroque præsertim stigmatibus lamellatis, radice fasciculatâ, et defectu cormi. Si tamen Merendera, Bulbocodium, et Monocaryum, ut monet doctiss. Brownio,\* potiùs subgenera Colchici sunt, forsàn hoc quoque illi referendum est.

Specimina sicca a cel. Nuttallio lecta et mihi benevolè communicata.

## TRIB. 2. MELANTHÆÆ.

### 2. ZIGADENUS, Michx.

FLORES hermaphroditi. PERIANTHII foliola basi subcoalita, exungiculata, petaloidea, patentissima, infernè glandulis binis (sæpe connatis) instructa. STAMINA 6: filamenta basi dilatata, cum perianthii foliolis inserta, eademque subæquantia. ANTHERÆ cordatæ, sinum affixæ, vix extrorsæ (loculis apice connatis et confluentibust), post dehisceniam clypeolatæ. OVARIA 3, intùs concreta, pluriovulata, sursum attenuata, stylisque gracilibus desinentia: stigmata simplicia vel subcapitata. CAPSULA ovato-conoidea, coriaceo-membranacea, subtriloba, supernè tripartibilis, carpellis intùs dehiscentibus; loculis 6—8-spermis. SEMINA oblonga, aptera, nunc apice vix membranaceo-appendiculata.

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\* *Observations on the plants collected by Oudney, &c. p. 37.*

† Idèd antheræ uniloculares septo evanido, ut in Malvaceis.

CAULES basi bulbescences seu rhizomatibus repentibus, infernè foliosi: *folia* graminea: inflorescentia plerumquè paniculata; ramis paucis, subsimplicibus: *bracteæ* subspathiformes: *flores* albidì, extùs præcipuè virescentes.

ZIGADENUS, *Michx. fl.* 1, p. 213, t. 22; *Pursh, fl.* 1. p. 216; *Willd. in mag. naturf. fr.* 2. p. 30; *Ell. bot. S. Car. and Georg.* 1, p. 420; *Rœm. & Schult. syst.* 7, p. 101.

HELONIE species, *Ker, in jour. sci.* 1, p. 184.

OBS. Hùc pertinet *Melanthium Sibiricum*, *Linn. et auct.* (*Ornithogalum spicis florum longissimis, &c. Gmel. fl. Sibir.* 1, p. 45, t. 8.)

1. Z. GLABERRIMUS; rhizomate repente; foliis longè lineari-lanceolatis, superioribus perbrevibus; paniculâ pyramidalì; bracteis ovatis, acuminatis, pedicellos subæquantibus; foliolis perianthii ovato-lanceolatis, acuminatulis, basi ferè angustatis, crassiusculis; glandulis orbiculatis distinctis.

Z. glaberrimus, *Michx. fl. l. c.*; *Pursh, fl.* 1, p. 241; *Redout. Lil.* t. 461; *Ell. l. c.*; *Rœm. & Schult. syst.* 7, p. 1559; *Hook. & Arn. in bot. Beechey,* p. 161?

Z. bracteatus, *Rœm. & Schult. l. c.*

*Helonias bracteata, Sims. bot. mag. t.* 1703.

*Caulis* 1—3-pedalis, supernè subnudus. *Folia* plana, supremis ad bracteas subspathiformes diminutis. *Paniculæ* rami 3—5, plerique simplices, 7—10-flori. *Flores* magnitudine *Veratri viridis*. *Perianthii* foliola leviter striata, stellato-patentia. *Styli* contigui. *Ovaria* multi-ovulata; ovulis biseriatis sursùm imbricatis.

*Hab.* In herbosis humidis, a Virginiâ (*Pursh*) et Carolinâ super. ! usque ad Alabamam ! et in Californiâ. (fide *Hook. & Arn. l. c.*)

2. *Z. GLAUCUS*; bulbo tunicato; foliis caule brevioribus, linearibus, vix acutis; racemo subsimplici; bracteis lanceolatis pedicellis brevioribus; perianthii foliolis ovalibus obovatisve, obtusis, glandulâ obcordatâ instructis.

*Zigadenus chloranthus*, *Richards. app. Frankl. journ. (ed. 2.) p. 12*; *Torr. ! in ann. lyc. New-York, 2. p. 251*; *Ram. & Schult. syst. 7, p. 1561*; *Hook. & Arn. ! bot. Beechey, p. 130.*

*Z. glaucus*, *Nutt. ! in jour. acad. Philad. 7, p. 56.*

*Z. commutatus*, *Ram. & Schult. l. c.*

*Melanthium glaucum*, *Nutt. ! gen. 1, p. 232*; *Torr. fl. 1, p. 367.*

*Leimanthium ? glaucum*, *Ram. & Schult. l. c. p. 1551.*

*Caulis* pedalis, supernè subnudus (1—2-foliatus). *Folia* glauca, planis, supremis bracteiformibus. *Racemus* (seu panicula subsimplex) 7—20-florus, infernè sæpiùs plùs minùs compositus; pedicellis uncialibus apice incrassatis. *Flores* magnitudine *Ornithogali umbellati* (interdùm polygami ex *Richards*). *Perianthii* foliola obscurè striata, basi leviter angustata; glandulis confluentibus. *Styli* demùm recurvi. *Capsula* conoidco-oblonga, perianthio persistente multò longior; carpellis apice divergentibus, stylis brevibus subulatis, 7—8-spermis. *Semina* ex-appendiculata. — Julio et Augusto floret.

*Hab.* Ad ripas arenosas, etc., a Canadâ! et freto Kotzebuanò! usque ad Arkansam! et Oregon! (*v. sp. in herb. Nutt. in planitiis altis fluminis Platte et Multnomah lecta.*)

*Obs.* An hùc pertinet *Zigadenus commutatus*, *Schult. l. c.* (*Helonias glaberrima*, *Bot. mag. t. 1680*.) et forsàn *Hook. et Arn. in bot. Beechey, p. 160*?

Vidi in herb. Acad. Sci. Nat. Philadelphię specimen Canadense (propè Maitland a McNab lectum), paniculâ pedali, ramis subsimplicibus særè 12-floris!

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Species omnino ignota est *ZIGADENUS ELEGANS*, *Pursh, fl. 1, p. 241.*



3. LEIMANTHIUM. *Willd.*

FLORES plerumquē (abortu ovarii) polygami. PERIANTHII foliola stellato-patentia, petaloidea, basi biglandulosa; unguibus staminiferis. STAMINA 6: filamenta perianthii foliolis breviora, unguibus plūs minūs accreta. ANTHERÆ reniformes, sinum affixæ, vix extrorsæ (loculis apice connatis et confluentibus), post dehiscētiā clypeolatæ. OVARIA 3, angulis internis coalita, pluriovulata, stylis brevibus subulata: stigmata simplicia, minuta. CAPSULA ovata (membranacea, turgida,) triloba, tripartibilis; carpellis follicularibus 4—10-spermis, intūs (supernè præsertim) dehiscētib. SEMINA compressa, latè membranaceo-alata.

CAULES plerique supernè puberuli, elati: *folia* lineariavel lanceolata, elongata, (rariūs latiora et quasi petiolata): *panicula* pyramidata, e racemis multifloris plerisque simplicibus (imis quandoque compositis): *flores* ochroleuci vel flavo-virentes, demùm luridi: *pedicelli* bracteis sæpiūs brevibus stipati.

LEIMANTHIUM, “ *Willd. in mag. naturf. fr. 2, p. 24,*” (excl. spec.); *Roem. & Schult. syst. 7, p. 100.*

MELANTHII species, *Linn. et auct.*

MELANTHIUM, *Michx. fl. 2, p. 251; Nutt. gen. 1. p. 232; Ell. bot. S. Car. & Georg. 1. p. 418; Torr. fl. 1, p. 367.*

OBS. Genus a Melanthio (Prom. Bonæ Spei) abundè diversum, inflorescētiā paniculato-racemosā, pedicellis bracteatīs, floribus plerisque polygamis, perianthio persistente, antheris unilocularibus, seminibus alatis, etc.

1. *L. VIRGINICUM* ; foliis lineari-lanceolatis, elongatis ; perianthii foliolis angustissimè unguiculatis, laminâ subrotundo-ovatâ (demùm oblongâ), basi subcordato-auriculata, glandulis approximatis ; unguibus supra medium staminiferis.

*Leimanthium Virginicum*, " *Willd. l. c. p. 24 ;*" *Ram. & Schult. syst. 7, p. 1549.*

*Melanthium Virginicum*, *Linn. ; Gron. Virg. p. 59 ; Derouss. in Lam. enc. meth. 4, p. 24, t. 260 ; Walt. Car. p. 125 ; Willd. spec. 2, p. 266 ; Michx. fl. 2, p. 251 ; Pursh, fl. 1, p. 240 ; Ell. bot. S. Car. & Georg. 1, p. 418 ; Torr. ! fl. 1, p. 367 ; Darlingt. fl. Cest. (ed. 2,) p. 231.*

*M. polygamum*, *Desrouss. l. c.*

*M. hybridum*, *Ell. l. c. (fide amic. Curtis.) ; Torr. fl. l. c., non Wall. Veratrum Virginicum, Ait. hort. Kew. (ed. 2.) 5, p. 426.*

*Helonias Virginica*, *Sims, bot. mag. t. 285.*

*Caulis* 3-pedalis et altior ; parte superiore, ramis paniculae, pedicellis, et extrinsecus perianthio puberulis. *Folia* pallidè viridia, debilia, 8—20 unc. longa, semi—sesquiuncialia lata, inferioribus amplexicaulibus. *Panicula* pedalis sesquipedalisve ; ramis plerumquè simplicibus, laxifloris ; pedicelli, vix unciales, flore longiores. *Flores* ochroleuci, demùm brunnei ; superiores (quandoque inferiores) praecipuè hermaproditi, semiunciales et longiores. *Bractea* pedicellis multò breviores. *Perianthii* foliola laminâ plus minus obtusâ vel acutiusculâ, obsolete striatâ ; glandulis rotundis distinctis. *Capsula* ferè unc. longa, stylis lin. 2 longis apiculata. *Semina* 4—10 in singulis carpellis, ovato-lanceolata.—Julio-Augusto floret.

*Hab.* In pratis et sylvis humidis a Novo Eboraco ! usque ad Floridam ! et Arkansam !

2. *L. HYBRIDUM* ; foliis lineari-lanceolatis, elongatis ; perianthii foliolis angustè unguiculatis, laminâ rhomboideo-suborbiculatâ margine undulatâ ; glandulis conniventibus (quandoque obsoletis) ; unguibus convoluto-canaliculatis, infra medium staminiferis.

*α. gracilis* ; paniculâ sparsiflorâ, ramis plerisque simplicibus.

β. robustior ; foliis inferioribus plantagineis ; ramis imis paniculæ compositis.

γ. elata ; ramis paniculæ plerisque compositis, multifloris.

*Leimanthium hybridum*, *Ram. & Schult. syst.* 7, p. 1550, excl. syn. *Nutt. Ell. & Torr.* et descr.

*Melanthium hybridum*, *Walt. Car.* p. 125 ; *Pursh, fl.* 1, p. 241 ? non *Nutt.* nec *Ell. & Torr.*

*M. latifolium*, *Desrouss. in Lam. enc. meth.* 4, p. 25.

*M. racemosum*, *Michx. fl.* 2, p. 251.

*Caulis* 2—4-pedalis, supernè puberulus. *Folia* suprema pauca, brevissima. *Panicula* plerumquè minor et gracilior quam in *L. Virginico*, floribus paucioribus minoribusque : pedicelli patentes, filiformes, flore multò longiores. *Perianthii* foliola flavo-virentia ; apice laminarum sæpiùs plus minùs cuspidato vel acuminato ; margine ferè scarioso ; unguibus ima filamentorum involvens, laminam subæquantibus. *Fructum* non vidi.

*Hab.* In umbrosis a Pennsylvaniâ ! usque ad Georgiam ! “ In excelsis montibus Carolinæ septentrionalis,” *Michaux.* *Lincolnton, Car. sept. Curtis !* ; propè Germantown, Pennsylvaniæ, *Nuttall !* γ. *Macon, Georgiæ (r. sp. in herb. acad. Philad. sine foliis).*

3. *L. MONOICUM* ; foliis latè ovalibus, basi quasi petiolatis, superioribus oblanceolatis linearibusve ; paniculâ summâ longè racemosâ, fertili, infernè racemis masculis brevibus ; perianthii foliolis obovato-spathulatis vel oblanceolatis, unguibus sensim attenuatis, ad basi staminiferis ; glandulis sæpiùs nullis.

*Leimanthium monoicum*, *Ram. & Schult. syst.* 7, p. 1550, excl. syn. et descr. *Melanth. polygam.* *Desrouss.*

*Melanthium monoicum*, *Walt. Car.* p. 125 ; *Pursh, fl.* 1, p. 241 ? *Ell. bot. S. Car. & Georg.* 1, p. 418 ?

*M. hybridum*, *Nutt. ! gen.* 1, p. 232, non *Walt.*

*Veratrum parviflorum*, Michx. fl. 2, p. 250; Pursh, fl. 1. p. 242; Rœm. & Schult. syst. 7, p. 1557, excl. syn. et descr. *Melanth. bracteolare*, Desrouss.

*Caulis* bipedalis, supernè virgatus, ferè nudus (ramiquoque paniculæ) puberulus, basi bulbescens. *Folia* inferiora 6—8 unc. longa, ferè 3 unc. lata, sæpè acuminata, infernè abruptè angustata quasi petiolata, caulem vaginantia; superiora paucissima, invicem minora. *Panicula* pyramido-virgata, sesquipedalis, ramis lateralibus gracilibus. *Pedicelli* filiformes, flore paulò longiores. *Flores* paulò minores quam in *M. hybridò*, virescentes. *Perianthii* foliola striata, ferè plana, apice vix acuta, infernè attenuato-unguiculata, staminibus duplò longiora; glandulis in floribus masculis nullis, in hermaphroditis sæpiùs obsoletis. *Capsula* 4—6 lin. longa, stylis brevissimis ( $\frac{1}{2}$  lin. long.) apiculata; carpellis 4—5-spermis. *Semina* ovalia, utrinquè acuta, 3—4 lin. longa.—Julio floret.

*Hab.* In excelsis montibus Virginie et Carolinæ, Michaux & Nuttall! Specim. vidi et exam. monte “*Table-mountain* dicto lectum amico Curtis!”

*Obs.* Planta foliis ferè *Veratri*, sed inflorescentiâ, floribus fructibusque *Leimanthii*, licèt perianthio sæpiùs eglandulosa.

*Veratrum parviflorum*, Bongard, reg. insul. Sitcha est *Veratrum Eschscholtzii nobis*.

#### 4. VERATRUM. Linn.

FLORES (abortu ovarii) polygami. PERIANTHII foliola basi plùs minùs coalita, petaloidea, patentia vel erecto-patentia, ex-unguiculata, eglandulosa. STAMINA 6; filamentis imo perianthio insertis, eodemque breviora. ANTHIERÆ subglobosæ, ferè innatæ (loculis apice connatis et confluentibus), post dehiscentiam clypeolatæ. PISTILLA, CAPSULA, et SEMINA ut in *Leimanthio*.

VERATRUM, Linn. (excl. *V. lutei*) et auct.

# 1. VERATRUM PROPRIUM.

PERIANTHII foliola obovata vel oblonga, vix acuta, basi plùs minùs angustata, staminibus subduplò longiora: filamenta demùm extrorsim patentia.

CAULES robusti, foliosi: *folia* latè ovata vel oblonga, plicato-nervosa, caulem vaginantia; superioribus sensim minoribus, bracteis insidentibus: *panicula* plerumquè pyramidata, racemis simplicibus: *flores* flavo-virentes vel atro-purpurei.

VERATRUM, *Linn.* (excl. sp.); *Juss. gen.* p. 47; *Lam. ill.* t. 843; *Michx. fl.* 2, p. 249; *Willd. spec.* 4, p. 895; *Nutt. gen.* 1, p. 233 (excl. sp.).

HELONIE species, *Ker, in bot. mag. etc.*

*Obs.* *V. Sabadilla*, Retz. a Veratro diversa videtur, antheris præsertim bilocularibus (conf. fig. in *Dict. sci. nat.* et descr. *Ræm. & Schult. syst.* 7, p. 1558,) necnon floribus nutantibus secundis: fortè (cum aliis Mexicanis nondum descriptis, vid. *Schiede, in Linnæa*, 4, pp. 226 & 234,) genus proprium constituere meretur.

1. *V. VIRIDE*; ramis paniculæ demùm patentibus; foliolis perianthii campanulati oblongis, basi subangustatis, filamentis plerumquè planis paulò longioribus.

*Veratrum viride*, *Ait. hort. kew.* (ed. 1,) 3, p. 896; *Pursh, fl.* 1, p. 242, *Bigel. Am. med. bot.* t. 33; *Ell. bot. S. Car. & Georg.* 1, p. 419; *Torr. fl.* 1, p. 368; *Ræm. & Schult. syst.* 7, p. 1556; *Darlingt. fl. Cest.* (ed. 2,) p. 232.

*V. album*, *Michx. fl.* 2, p. 249. non *Linn.*

*Helonias viridis*, *Bot. mag.* t. 1096, excl. syn.

*Melanthium bracteolare*, *Desrouss. in enc. meth.* 4, p. 26.

*Radix* magna, fibris carnosis albis. *Caulis* (3—7-ped.) ramis paniculæ, pedicellis (brevibus) foliisque subtèr sparsim puberulus. *Perianthium* flavo-viride, foliolis exterioribus obtusiusculis; interioribus ferè acutis, margine denticulato-crosis. *Stamina* rariùs 7.—Maio—Julio floret.

*Hab.* In pratis humidis, etc. a Canadâ! usque ad montes Georgiæ.—Vulgò *White Hellebore*, *Poke*.

2. V. ESCHSCHOLTZII; paniculæ ramis lateralibus (quandoque compositis) plerumquè nutantibus; foliolis perianthii campanulati oblongis, basi attenuatis, filamentis gracillimis plusduplò longioribus.

*Veratrum Lobelianum* β. *Eschscholtzianum*, *Ram. & Schult. syst.* 7, p. 1555.

V. parviflorum, *Bongard, veg. Sitcha. in mem. acad. St. Petersb. (ser. 6.)* 2, p. 166, non *Michx.*

*Hab.* In Amer. bor.-occidentali; insulâ Sitchâ Ruthenorum, *Eschscholtz* et *Mertens*; prope “Observatory Inlet,” *Scouler!* et ad ripas fluminis Oregon, *Nuttall!*

*Obs.* Præcedenti nimis affinis, quo differt foliis pedunculisque magis pubescentibus, etc., et præsertim filamentis brevioribus et gracilioribus.

## 2. SUBGEN. STENANTHIUM.

PERIANTHII foliola angustè lanceolata, subulato-acuminata, basi subdilatata, staminibus (florum sterilium præsertim) multò longiora.

CAULIS gracilis, basi bulbescens: *folia* graminea caulem haud vaginantia: *panicula* virgata: *flores* albid.



V. (STENANTH.) ANGUSTIFOLIUM ; foliis angustè lineari-  
bus, planis, inferioribus obtusis ; racemo terminali fertili, elon-  
gato ; lateralibus brevibus, floribus sæpè sterilibus subsessili-  
bus ; foliolis internis perianthii angustioribus.

*Veratrum angustifolium*, Pursh, *fl.* 1, p. 242 & 2, p. 747; *Nutt. gen.* 1, p. 233; *Ell. bot. S. Car. & Georg.* 1, p. 420; *Ram. & Schult. syst.* 7, p. 1557.

*Xerophyllum gramineum*, *Nutt. gen.* 1. p. 236?

*Planta* glabra. *Radix* fibris subcrassis. *Caulis* 2—4-pedalis, teres, gracilis. *Folia* (non carinata) pleraque 1—2-ped. longa, 2—3 lin. lata; inferiora vix vaginantia; superiora semiamplectantia, acuta; summis brevibus. *Panicula* sæpè bipedalis, pergracilis, multiflora; floribus racemorum lateralium (quandoque cæteris) ovar. defectu plerumquè sterilibus. *Racemi laterales* plurimi, filiformes, patentes, 1—3 unc. longi, (imis interdum compositis,) bractea lineari-setacea stipati; superiores sensim breviores, bracteis minutis; floribus vix pedicellati bractea ovato-lanceolata cuspidata plusduplò longioribus. *Racemus terminalis* sæpiùs elongatus; pedicellis flores subæquantibus. *Perianthium* albidum vel virescens; *foliola* (2 lin. longa) striata (exteriora basin versus plùs minus dilatata), sursùm (præsertim flor. steril.) longè attenuata, acutissima. *Stamina* in flor. steril. præsertim perianthio multò breviora; in flor. fertil. demùm fere dimidio breviora. *Styli* brevissimi, recurvi. *Capsula* vix 3 lin. longa. *Semina* (immatura) in loculis 4, ovali-oblonga, apice acuminata.—Junio et Julio floret.

*Hab.* In umbrosis ab Ohio! ad Virginiam! Floridam! et Arkansam!

5. AMIANTHIUM.\*

FLORES hermaphroditi. PERIANTHII foliola basi vix coalita (ovalia vel obovata), petaloidea, patentissima, exungiculata, eglandulosa. STAMINA 6; filamentis plerisque capillaribus cum perianthio insertis, idemque æquantibus vel superantibus. ANTHERÆ reniformes, ferè innatæ (loculis apice connatis et confluentibus), post dehisceniam clypeolatæ. OVARIA 3, (rariùs abortu pauciora) intùs plùs minùs coalita, pauciovulata, stylis filiformibus subulatisve desinentia: stigmata simplicia minuta. CAPSULA (membranacea, turgida,) triloba, tripartibilis; carpellis follicularibus (interdùm apice distinctis) 1—4-spermis, intùs supernè dehiscentibus. SEMINA lanceolata vel linearia, compressa utrinquè membranacea, aut teretia, oblonga, testâ laxâ demùm carnosâ.

CAULES scapiformes, basi sæpè bulbescentes: folia graminea; inferioribus plùs minùs confertis, vaginantibus: racemus simplex vel compositus, multiflorus: flores albidì, sæpiùs longè pedicellati, bracteis plerisque brevissimis stipati.

HELONIÆ pars, *Michx. fl.* 1, p. 211; *Pers. syn.* 1, p. 398; *Willd. in mag. naturf. fr.* 2, p. 29; *Pursh, fl.* 1, p. 216; *Nutt. gen.* 1, p. 234; *Ell. bot. S. Car. & Georg.* 1, p. 421; *Torr. fl.* 1, p. 368; *Ræm. & Schult. syst.* 7, p. 101, non *Linn.*

LEIMANTHII species, *Willd. l. c.*

MELANTHII species, *Walt. Car.* p. 125; *Lam. enc. meth.* 4, p. 28; *Ait. hort. Kew. (ed. 1.)* 1, p. 488; *Willd. spec.* 2, p. 266.

CHROSPERMA et CYANOTRIS, *Raf.*

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\* Nomen ab *αμιαντος* (immaculatus, purus) et *ανθος* (flos) derivatum.

OBS. *Helonias* Linnæi de *H. bullata* et *H. asphodeloidi* constituta fuit, cujus iste est *Xerophyllum* Michauxii; itaque nomen *Helonias* specie priore retineatur. *Amianthium* a *Heloniâ* differt, structurâ præsertim antherarum et capsulæ, stylis distinctis stigmatibus minutis desinentibus, etc.; a *Veratro* (cui species racemis compositis magis accedunt), floribus omnibus hermaphroditis, staminibus stylisque longioribus, seminibus vix alatis, et habitu.

Nomen *Cyanotris*, Raf. in *jour. de Phys.* (= *Hel. angustifolia*, Michx.) a nomine *Cyanotris* Don vix differt; *Chrosperma* specei unicæ solùm apta est; ideò utrumque præteritur.

1. *A. MUSCÆTOXICUM*; bulbo tunicato; foliis planis, inferioribus latè linearibus obtusis; racemo simplici; foliolis perianthii oblongis, obtusissimis; carpellis supernè distinctis, stylis subulatis divergentibus; seminibus coccineis.

*Melanthium muscætoxicum*, Walt. *Car.* p. 125.

*M. lætum*, Ait. *hort. Kew.* (ed. 1.) p. 488; Willd. *spec.* 2, p. 267; "Thunb. in act. soc. nat. scrut. Hafn. (4,) 2, p. 19, t. 7," fide Ræm. & Schult.

*M. phalangioides*, Desrouss. in *Lam. enc. meth.* 4, p. 27, et *ill. gen.* t. 260.

*M. densum*, Desrouss. *l. c.* p. 26.

*Leimanthium lætum et pallidum* (excl. syn. Michx.), Willd. in *mag. naturf. fr.* 2, p. 24.

*Helonias læta*, Ker, *bot. mag.* t. 803; *id. op.* t. 1540.

*H. erythrosperma*, Michx. *fl.* 1, p. 212; Pursh, *fl.* 1, p. 242; Nutt. *! gen.* 1, p. 234; Ell. *bot. S. Car. & Georg.* 1, p. 421; Torr. *! fl.* 1, p. 369; Ram. & Schult. *syst.* 7, p. 1562; Darlingt. *fl. Cest.* (ed. 2,) p. 234.

*Anthericum subtrigynum*, Jacq. *coll.* 3, p. 273, et *ic. rar.* 2, t. 419.

*Chrosperma* (absq. nom. spec.) Raf. *neogen.*

*Caulis* sesquipedalis, obtusè angulosus. *Folia* radicalia pedalia, 3—4 (nunc 8) lin. lata, debilia: caulina (sæpè vix ulla) sparsa, superioribus ad bracteas diminutis. *Racemus* cylindraceus, densiflorus, 3—4 (rariùs

8—9) unc. longus. *Pedicelli* 5—10 lin. longi, filiformes, ferè patentés, bracteis scariosis ovato-lanceolatis plurimùm longioribus. *Flores* albi demùm viridescentes, 3—4 lin. lati. *Perianthii* foliola stamina æquantia, nec basi nec apice angustata, venoso-striata. *Antheræ* magnæ, albidæ. *Carpella* infernè tantùm concreta, supernè divaricata, 1—2-sperma. *Semina* ovoidea, testâ demùm carnosâ coccineâ. — Junio et Julio (in Georgiâ Maio) floret. Vulgò *Fly-poison* dicitur.

*Hab.* In umbrosis paludosis a Novâ Cæsareâ! et Pennsylvaniâ! ad Floridam! et Arkansam.

2. A. NUTTALLII; bulbo tunicato; foliis conduplicato-carinatis, acutis; perianthii foliolis (tenuibus) basi subunguiculatis; carpellis apice distinctis; stylis subulatis contiguis; seminibus oblongis, teretibus.

α. racemo simplici.

*Helonias angustifolia*, Nutt.! *fl. Arkans. in trans. Am. phil. soc.* (ser. 2,) 5, p. 154, non Michx.

β. racemo infernè composito, paniculato. (An conditio abnormalis?)

*Helonias paniculata*, Nutt.! *in jour. acad. Philad.* 7, p. 57.

*Caulis* sesquipedalis, teres (infernè leviter sulcatus), sæpiùs robustus et juxta racemum attenuatus; bulbo tunicato magno, basî fibrillato. *Folia* inferiora, 6—12 unc. longa, 2—4 lin. lata, subcrassa, margine asperula, basi vaginantia, membranacea; superiora breviora, attenuata; summis membranaceis, bracteisformibus. *Racemus* multiflorus, 2—4 unc. longus, pedicellis (uncialibus) filiformibus: nunc racemo ampliore, laxiore, infernè composito, ramis paniculatis, laxè 3—8-floris. *Bractea* scariosa, pedicellos vix æquantes; inferioribus sæpè filiformi-setaceis. *Flores* albi, magnitudine *A. angustifoliæ*. *Perianthii* foliola staminibus paulò longiora, latè ovalia vel subovata (alterna angustiora), obtusiuscula, venoso-striata, basi subcordata vel rotundata, abruptè subun-

guiculata, maculâ flavidâ leviter notata. *Antheræ* magnæ. *Ovaria* (rariùs 2) 7—8-ovulata, stylis brevibus subulata. *Semina* in singulis carpellis 1—2, oblonga, testâ laxâ demùm carnosâ.

*Hab.* In Arkansâ, *Nuttall!* *Pitcher!* & *Leavenworth!* et Texas, *Drummond!*: in elevationibus montium *Rocky-Mountains* dictorum, et in Oregon, *Nuttall!*: prope Fort Vancouver, *Scouler!*

*Obs.* Crescit (ex *Nutt.*) cum *Kamassa esculenta*, qua bulbi nocentes viatoribus sæpè confusi sunt.

3. *A. ANGUSTIFOLIUM*; caule (gracili) basi non bulboso; foliis angustissimè linearibus, acutis; racemo simplici; foliolis perianthii ovalibus, stylis filiformibus contiguis brevioribus; seminibus linearibus.

*Helonias angustifolia*, *Michx.*! *fl.* 1, p. 212; *Pursh*, *fl.* 1, p. 242; *Nutt.*! *gen.* 1, p. 234; *Ell.*! *bot. S. Car. & Georg.* 1, p. 421; *Torr.*! *fl.* 1, p. 369; *Ræm. & Schult. syst.* 7, p. 1564.

*H. læta*  $\beta$  minor, *Bot. mag.* t. 1540.

*Caulis* 1—3-pedalis, teres. *Folia* forè omnia radicalia, pedalia et longiora, 1—2 lin. lata, apicem versus sensim attenuata et carinato-triquetra; superioribus ad bracteas squamæformes diminutis. *Racemus* multiflorus, 2—3 (demùm sæpè 5) unc. longus. *Pedicelli* 5—6-lin. longi, filiformes, ad apicem incrassati, erecto-patentes, bracteis scariosis lanceolatis plurimùm longiores. *Flores* albidæ, 3—4 lin. lati. *Perianthii* foliola staminibus paulò longiora, obtusa vel parum acutiuscula, basi subangustata, leviter striata. *Antheræ* flavidæ, dimidio minores quam in *A. muscatoxico*. *Capsula* loculis 1—4-spermis. *Semina* linearia, ferè teretia, testâ laxâ membranaceâ basi apiceque vix producta.—Maio—Junio floret.

*Hab.* In sylvis humidis (pinetis) Carolinæ superioris ! et inferioris ! Georgiæ ! et Floridæ !

*Obs.* *Helonias angustifolia*, *Darlingt. fl. Cest. ed. 1.* est *H. erythrosperma*, *Michx.* fide *Darlingt. ipsius in op. cit. ed. 2.*

4. A. LEIMANTHOIDES; caule (elato) basi non bulboso; foliis linearibus, planis; racemo composito, pyramidato; perianthii foliolis latè ovalibus, stylis linearibus longioribus; seminibus lanceolatis, compressis, apice alatis.

*Helonias graminea*, *Ell. herb.* fide *Curtis*, non *Bot. mag.*

*Radix* fibris crassis. *Caulis* teres, parum angulosus, 2—4-pedalis, supernè subnudus. *Folia* pallidè viridia; inferiora 1—2-pedalia, 3 lin lata, plana, subcarinata, obtusiuscula; superiora sparsa, sensim breviora et acuta; summis 2—3 unc. longis, lineari-lanceolatis. *Panicula* 8—12 unc. longa; racemo terminali plùs minùs elongato, multifloro lateralibus (5—6) simplicibus; imis sæpè subremotis. *Pedicelli* patentes, graciles, demùm 6—8 lin. longi, apice parum incrassati, bracteis lanceolatis scariosis plurimùm longiores. *Flores* albi, 4 lin. lati. *Perianthii* foliola demùm recurva, staminibus paulò breviora, fere æqualia, utrinquè obtusa, vix striata. *Capsula* latè ovato-conica, loculis 4-spermis. *Semina* angustè membranaceo-marginata, apice alata.—Julio—Augusto floret.

*Hab.* In paludosis Novæ Cæsareæ (prope Haddonfield, *Durand* ! ) Carolinæ sept. (monte *Table-mountain* dicto, *Curtis* ! ), et prope Novum Aurelianum (*Ingalls* ! ).



*Obs.* Planta elegans inflorescentiâ foliisque Leimanthii, sed floribus omnino Amianthii.

*Helonias graminea* herb. div. Elliottii, fide amic. *Curtis*, sed descriptio ejus non quadrat.

5. A. ? ASPERICAULE; caule floribusque pulverulento-puberulis, asperiusculis; foliis caulinis lineari-lanceolatis, planis; racemulis subspicatis, floribus brevi-pedicellatis, bracteolâ minimâ sub perianthio.

*Melanthium aspericaule*, *Poir. enc. meth. suppl.* 3, p. 628.

*Hab.* "In Carolinâ, *Bosc.*" (*V. sp. sic.* valdè immaturam prope Columbiam, Carolinæ infer. lectam amico *Curtis* !)

*Obs.* Planta minimè cognita, a Poiret solùm descripta, tamen Sprengelio ad *Tofieldiam glutinosam*, et Schultzio ad *T. pubentem* perperam ducta. In *spec. Curtis.*: Caulis (ima pars adest) sesquipedalis, striatus, trifolius, pulverulento-scaber. Folia striata plana, sensim acuta (juniora subtùs et margine puberula), glabra, basi latiora et semiamplectantia; infimum ferè 6-unciale; superiora sensim breviora; summis ad bracteas diminutis. Panicula spiciformis, tomentoso-puberula, 2 unc. longa, e racemulis plurimis (superioribus confertis, imis longioribus et subdistantibus) 3—8-floris compositis. Flores inexpandi brevissimè pedicellati, bracteâ cymbiformi ovatâ striatâ breviores, bracteolâ minimâ juxta perianthium muniti. Perianthii foliola (ante evolutionem) concava, ovali-obovata, basi subangustata (nec unguiculata). Stamina basi perianthio inserta: antheræ magnæ, extrosæ, uniloculares. Styli brevissimi.—Ad hoc genus non certè pertinet; specimen meum haud idoneum.

6. SCHÆNOCAULON.\*

FLORES hermaphroditi. PERIANTHII foliola herbacea (lineari-oblonga, obtusa), basi vix coalita, suberecta, exunguiculata, eglandulosa. STAMINA 6; filamentis subulatis cum perianthio insertis, eodemque demùm duplò longioribus. ANTHERÆ (magnæ) reniformes (loculis apice connatis et confluentibus), post dehiscientiam clypeolata. OVARIA 3, angulis internis concreta, 6—8-ovulata, stylis perbrevebus sensim apiculata: stigmata simplicia minuta. CAPSULA . . . .

CAULIS bulbus tunicatus: *folia* omnia radicalia, caricina, prælonga et angustissima, arida, subcanaliculata: scapus simplicissimus, pergracilis, prorsus nudus: *flores* parvi, arctè sessiles (singuli bracteâ minutâ stipati), in spicam gracilem dispositi.

S. GRACILE.

Helonias? dubia, *Michx. fl.* 1, p. 213; *Pursh, fl.* 1, p. 244; *Ræm. & Schult. syst.* 7, p. 1565.

*Planta* glaberrima, habitu multùm Triglochini accedens. *Bulbus* vaginis scariosis brunneis tectus. *Folia* suberecta, valdè striata, 1—2 ped. longa, vix lineam lata, supernè attenuato-setacea. *Scapus* junciformis, teres seu infernè subangulosus, 2—3-pedalis. *Spica* virgata, 3—4 unc. longa; floribus primùm confertis, denique laxè (alternatim) dispositis, bracteis ovatis scariosis duplò longioribus. *Perianthii* foliola pal-

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\* Nomen ab σχοινος (*funis, juncus*) et καυλον (*caulis*) derivatum.

lidè viridia, obtusa, subconcava, leviter 3—5-nervia. *Filamenta* ferè plana, retorsim sensim dilatata, perianthio primùm breviora, demùm duplò longiora. *Antheræ* ratione florum maximæ. *Capsula* immatura demùm perianthio persistente longior, ovata, 3-loba, 3-partibilis, stylis minutis apiculata. *Ovula* subovata, biseriata, ascendentia, anatropa. *Semina* matura et capsulam non vidi.—Aprili et Maio floret.

*Hab.* In sabulosis Georgiae et Floridae, *Michaux.* In Florida prope sinum *Tampa-Bay* dictum legit *M. C. Leavenworth!* *Burrows!* et *Alden!* (*V. spp. in herb. cl. Torrey.*)

## 7. XEROPHYLLUM. *Michx.*

FLORES hermaphroditi. PERIANTHII foliola petaloidea (ovalia), patentissima, exungiculata, eglandulosa. STAMINA 6; filamentis deorsum admodum dilatatis, cum perianthio insertis, idemque subæquantibus vel superantibus. ANTHERÆ subrotundo-ovatae, biloculares, apice et basi præsertim emarginatae, sinum affixæ, extrorsæ. OVARIVM subglobosum, trilobum, e carpellis tribus biovulatis arctiùs connatis compositum, stigmatibus totidem lineari-filiformibus revolutis (an rectiùs styli 3 intùs stigmatosi?) coronatum. CAPSULA subglobosa, subtriloba, coriacea, loculicidè dehiscens; loculis 2-spermis. SEMINA collateralia, erecta, oblonga, subcompressa, testâ membranaceâ apice plùs minùs producta.

CAULES basi ferè bulbescents, radicibus fibrosis: *folia* complura, arida, setacea; radicalia numerosissima, in cæspitem densum conferta, angustissimè lineari-setacea: *racemus* simplex, thyriformis, denique elongatus: pedicellis filiformibus basi bracteatis, seu ebracteatis et bibracteolatis: *flores* speciosi, albi.

XEROPHYLLUM, *Michx.* fl. 1, p. 210; *Willd. in mag. naturf. fr.* 2, p. 29; *Nutt. gen.* 1, p. 234; *Torr. ! fl.* 1. p. 370; *Ram. & Schult. syst.* 7, p. 102.

HELONIE species, *Linn. et auct.*

OBS. Genus *Helonix* nimis affine.

1. X. ASPHODELOIDES; pedicellis ebracteatis, bibracteolatis; staminibus foliola perianthii ovalia demum æquantibus.

*X. asphodeloides*, *Nutt. ! gen.* 1, p. 235.

*X. setifolium*, *Michx. fl.* 1, p. 211; *Poir. suppl. enc. meth.* 5, p. 509 (excl. syn.); *Torr. ! fl. l. c.*; *Ram. & Schult. l. c.* excl. syn. *Melanth. spicati Walt.*

*Helonias asphodeloides*, *Linn. spec.* 485; *Willd. spec.* 2, p. 274; *Bot. mag. t.* 748; *Lam. enc. meth.* 3, p. 100; *Pursh, fl.* 1. p. 243; *Ell. bot. S. Car. & Georg.* 1, p. 422.

*Caulis* 3—5-pedalis, teres, pallidus, undiquè foliosus. *Folia* rigida, basi subdilatata et crassiora, haud amplexantia, subtùs carinata, suprâ plana, margine minutissimè hispido-scabra; radicalia undiquè reclinata, pedalia et longiora, basin versus semi-lineam lata, sursùm attenuato-acicularia; caulina sensim minora et graciliora. *Pedicelli* unciales et longiores, infra medium sæpiùs bracteam setaceam muniti, alterâ minore sub flore. *Perianthii* foliola pauci-striata, obtusa, 2 lin. longa, alterna (exteriora) paulò breviora. *Stamina* filamentis crassis, imo valdè dilatatis et subcoactis. *Stigmata* ferè distincta, intùs totâ longitudine lineâ papulosâ notata. *Capsula* oblongo-subglobosa. *Semina* matura non vidi.

*Hab.* In arenosis et pinctis Novæ Cæsareæ! et Carolinæ. In montibus *Catawba-ridge* dictis Carol. super., fide *Nuttall.*

2. X. TENAX; pedicellis inferioribus longè bracteatis, ebracteolatis; staminibus (*ex icon.*) foliola perianthii oblonga excedentibus.

*X. tenax*, *Nutt. gen. l. c.*

*Helonias tenax*, *Pursh, fl.* 1, p. 243, t. 9.

*Hab.* In montibus *Rocky Mountains* dictis (*V. sp. sic.* racemi fructiferi solùm, ab amico celeberrimo Nuttallio benevolè communicatum.)

*Obs.* In icone citatâ styli filiformes stigmatibus subcapitatis desinentes falsè depicti sunt. Racemus fructifer speciminis Nuttallii est ferè sesquipedalis, pedicellis numerosissimis uncialibus, superioribus plerisque juxta basin bracteolatis, cæteris nudis; capsulis globosis; seminibus vix angularibus, testâ laxâ membranaceâ ad apicem et marginem internum levissimè productâ.

## 8. HELONIAS.

FLORES hermaphroditi (rariùs polygami) vel abortu dioici. PERIANTHII foliola (ligulata vel linearia) petaloidea, exungiculata, eglandulosa, patentia. STAMINA 6; filamentis (planis basi non dilatatis) cum perianthio insertis, idemque demùm superantibus. ANTHERÆ subrotundæ, biloculares, basi bifidæ, sinum affixæ, extrorsæ. OVARIVM subglobosum, trilobum, e carpellis tribus pluriovulatis compositum, stigmatibus totidem lineari-elongatis coronatum. CAPSULA submembranacea, ferè obcordata tricocca, aut ovoidea trisulca; loculis polyspermis. SEMINA linearia vel oblonga, utrinquè membranacco-appendiculata seu alata.

HELONIÆ species, *Auct.*

### 1. HELONIAS VERA.

FLORES hermaphroditi (quandoque polygami, fide *Bot. mag.*): *stigmata* revoluta-patentia: *capsulæ* lobi supernè gibboso-producti et divergentes quasi tricocci, dehiscentiâ loculicidâ; loculis polyspermis: *semina* linearia, utrinquè appendiculata.

**RADIX** carnosa : *folia* omnia ferè radicalia, conferta : *scapus* simplex, fistulosus : *racemus* spicatus, ovatus vel cylindraceus, densus : *flores* (pedicellis ebracteatis vel bracteis caducis) purpurascens : *antheræ* cæruleæ.

**HELONIAS**, Linn. (excl. *H. asphodelioid.*) Juss. gen. p. 47.

1. **H. BULLATA.**

*Helonias bullata*, Linn. spec. 485, et Amæn. acad. 3, p. 12, t. 1, fig. 1 (excl. syn. Pluk. etc.) ; Willd. spec. 2, p. 273, & in mag. naturf. fr. 2, p. 29 ; Bot. mag. t. 747 ; Bot. cab. t. 961 ; Redout. Lil. t. 13 ; Ræm. & Schult. syst. 7, p. 1561.

*H. latifolia*, Michx. fl. 1, p. 212 ; Pursh, fl. 1, p. 242 ; Torr. fl. 1, p. 369.

*Veratrum Americanum*, racemo simplicissimo, etc. Mill. dict. (ed. 8.) no. 4.

*Radix* crassa, præmorsa, amara, fibrosa. *Folia* spathulata, lanccolata, vel oblonga, ferè pedalia, vix sesqui-unc. lata, mucronata, plana, infernè longè sensim attenuata quasi petiolata. *Scapus* pedalis et altior, basi tumidus et squamis membranaceis vestitus, suprà crassiusculus, ferè nudus, squamis sparsis minimis vel obsoletis, ad apicem attenuatus. *Racemus* 1—3 unc. longus, densiflorus ; pedicellis colore et longitudine florum. *Pcrianthii* foliola ligulato-oblonga, obtusa, ferè 2 lin. longa. *Ovarium* fusco-purpureum.—Maio floret.

**Hab.** In paludosis Novæ Caesareæ ! Pennsylvaniæ ! Marilandiae, et (fide Pursh) Virginiae.

**Obs.** In Amæn. Acad. l. c. (etiamque in Enc. Meth. t. 268,) stigmata capitata stylos filiformes coronantia improprie depicta sunt.



## 2. SUBGEN. CHAMÆLIRIUM.

FLORES dioici; staminiferi quandoque rudimento ovarii; pistilliferi filamentis parvis sterilibus: *perianthii* foliola angustè linearia, obtusa: *capsula* ovoidea, supernè septicidè (et loculicidè?) dehiscent; loculis 4—8-spermis: *semina* oblonga, vix compressa, utrinquè latè membranaceo-alata.

RADIX præmorsa: *caulis* gracilis, supernè subnudus; *folia* radicalia plura, obovato-spathulata seu oblonga: caulina sparsa, angustiora: *racemus* spicatus, denique virgatus, densiflorus: *flores* (pedicellis ebracteatis vel bracteis caducis) albidis.

CHAMÆLIRIUM, *Willd. in mag. naturf. fr. 2, p. 19.* (character pessimus.)

OPHIOSTACHYS, *Redout. Lil. t. 464.*

DICLINOTRYS, *Raf. neogen. (1825) p. 3.*

## 2. H. (CHAMÆL.) DIOICA.

*Helonias dioica*, *Pursh, fl. 1, p. 243*, (excl. syn. *Lam. enc.*); *Ell. bot. S. Car. & Georg. 1, p. 423*; *Torr. ! fl. 1, p. 370*; *Darlingt. fl. Cest. (ed. 2,) p. 233.*

*H. pumila*, *Jacq. coll. 2, p. 260*, & *ic. rar. 2, t. 253*; *Willd. spec. 2, p. 275.*

*H. lutea*, *Ait. hort. Kew. (ed. 2,) 2, p. 330*; *Bot. mag. t. 1062*; *Ram. & Schult. syst. 7, p. 1565.*

*Veratrum luteum*, *Linn. spec. 1479*, & *Amæn. acad. 3, t. 1, fig. 2*; *Willd. spec. 4, p. 896*; *Barton, elem. bot. t. 2, fig. 9*; *Nutt. ! gen. 1, p. 233.*

*Melanthium dioicum*, *Walt. Car. p. 126.*

*M. luteum*, *Willd. in mag. naturf. fr. 2, p. 23.*

*Chamælirium Carolinianum*, *Willd. l. c. p. 19.*

*Radix* crassa, amara, fibrosa. *Caulis* 1—2-(in plantâ fertili sæpè 3-) pedalis, striato-sulcatus. *Folia* pallidè viridia; radicalia rosulata, 3—6

unc. longa, infernè attenuata quasi petiolata; caulina sursum sensim minora, oblanceolata vel linearia, acuta. *Racemus* sterilis, 2—6 unc. longus, flaccidus; floribus confertis; pedicellis patentissimis floribus paulò longioribus; fertilis robustior, sæpiùs multoties longior (1—2-ped.), strictus, pedicellis suberectis. *Perianthii* foliola 1-nervia, inconspicua; flor. ster. (alterna primùm cæteris longiora) deorsum subangustata, staminibus breviora; flor. fertil. ovarium vix æquantia, filamentis sterilibus longiora. *Capsula* acutiuscula vel obtusa, nunc obovata, ferè triloba, et ad suturas dorsales leviter sulcata. *Semina* fusca, membranâ tenui albâ cincta, et basi apicque alata.—Maio—Junio floret.

Vulgò. *Blazing-star*, *Devil's-bit*.

*Hab.* In pratis humidis et umbrosis a Canadâ! et Ohio! usque ad Georgiam! et Arkansam!

*Obs.* Fortè genus proprium. *Ex* cl. Darlington ovarium quandoque 4 carpellis compositum est. (*conf. fl. Cest.*)

## 9. TOFIELDIA, *Huds.*

FLORES hermaphroditi, involucro trifido vel triphylo remotiusculo calyculati. *PERIANTHII* foliola petaloidea, concava, exunguiculata, eglandulosa, plùs minùs patentia. *STAMINA* 6; filamentis basi perianthii foliolorum insertis, eademque æquantibus. *ANTHERÆ* cordato-subrotundæ, biloculares, sinum affixæ, introrsæ vel in nonnullis innatæ. *OVARIA* 3, plùs minùs concreta, pluriovulata: styli brevissimi stigmatibus simplicibus vel subcapitatis desinentes. *CAPSULA* submembranacea vel coriacea, ovata, 3-loba, demùm tripartibilis; carpellis gibbosis, polyspermis, intùs (et supernè ad dorsum) dehiscentibus. *SEMINA* oblonga, subarcuata, angulata seu utrinquè subulato-caudata.

CAULES scapiformes, non bulbescentes: *folia* pleraque radicalia, aequitantia: *flores* spicati aut racemosi, albidī, virescenti-flavidi, rariùsve sordidè coccinei; pedicellis solitariis aut 2—3-natis, bracteis parvis stipatis.

TOFIELDIA, *Huds. fl. Angl. p. 157; Smith. fl. Brit. p. 397, et in trans. soc. Linn. 12, p. 238; Dryand. in Ait. hort. Kew. 2, p. 324; Willd. in mag. naturf. fr. 2, p. 27; Nutt. gen. 1, p. 235; Wahl. fl. Succ. 1, p. 225; Torr. fl. 1, p. 371; Rœm. & Schult. syst. 7, p. 103.*

ANTHERICUM, *Linn. gen. ed. 1.*

NARTHECIUM, *Juss. gen. p. 47; Lam. ill. gen. t. 268; Michx. fl. p. 209.*

ISIDROGALVIA, *Ruiz & Pavon, fl. Per. 3, p. 69, t. 502.*

CONRADIA seu LEPTILIX, *Raf. neogen. p. 3.*

HEBELIA, *Gmel. fl. Baden.*

HERITERA, *Schrank.*

OBS. Tofieldiæ § Triantha (per proximum Narthecium) Melanthaceas Juncis alligat. Narthecium *Huds.* quod ob stylos in unicum coalitos Melanthaceis excludendum, Juncis foliis equitantibus seu complanatis accedit; quorum *J. castaneus*, *Smith* pæsertim semina utrinquè membranaceo-caudata habet.

### 1. TOFIELDIA VERA.

SPICA (vel racemus spicatus) genuina, modo florendi centripeto: *pedicelli* sæpissimè solitaires: *antheræ* introrsæ: *semina* ecaudata.

HERBÆ glabræ.

1. T. PALUSTRIS; caule filiformi ferè aphylo; capitulo ovato; involucris tripartitis pedicellos brevissimos fulcrantibus; perianthii foliolis obovatis, albidis.

*Tofieldia palustris*, "*Huds. fl. Angl. l. c. (excl. syn.)*;" *Smith, Eng. bot. t. 536, & in trans. soc. Linn. 12, p. 239*; *Richards. app. Frankl. journ. (ed. 2,) p. 11*; *Ram. & Schult. syst. 7, p. 1579*.

*T. borealis*, *Wahl. fl. Lapp. p. 89, & fl. Succ. 1, p. 225*; *Richards. l. c. ed. 1*.

*T. alpina*, *Sternb.; Spreng. syst. 2, p. 148*.

*T. pusilla*, *Willd. mag. naturf. fr. l. c.*; *Pursh, fl. 1, p. 246*.

*T. (Trianth.) pusilla*, *Nutt. gen. 1, p. 236*.

*Anthericum calyculatum*  $\beta$ . *Linn. fl. Succ. 288, & fl. Lapp. (ed. 2,) p. 103, t. 10, fig. 3*; *Fl. Dan. t. 36*.

*Helonias borealis*, *Willd. spec. 2, p. 274*.

*Narthecium boreale*, *Wahl. nov. act. Holm. 26, p. 24*.

*N. pusillum*, *Michx. fl. 1, p. 209*.

*Hab.* In paludosis, graminosis, etc. Americae arcticae, et ab Unalashkâ! usque ad lacum Mistassins.

*Obs.* Cl. Nuttallio perperam ad subgenus suum *Triantha* ducit.

2. *T. COCCINEA*; caule (erubescente) plerumquè diphyllò; spicâ capitatâ; involucris triphyllis ad flores ferè sessiles approximatis; perianthii foliolis angustè obovatis, viridi-coccineis.

*Tofieldia coccinea*, *Richards. app. Frankl. journ. (ed. 2,) p. 11*; *Ram. & Schult. syst. 7, p. 1580*; *Hook. & Arn. bot. Beechey, p. 130, t. 29 (bis)*.

*Hab.* Ad oras maris hyperborci, *Richardson*; in Unalashkâ, *Chamisso*; et ad fretum Kotzebuanum, *Beechey*!

*Obs.* An priore satis diversa? Specimen Unalashkense in herb. cl. Torreyi (sub nom. *T. borealis* cl. Fischer communicatum) utrumque connectere videtur.

3. *T. STENOPETALA*, *Smith.*

*T. stenopetala*, racemo cylindraceo, bracteis calycem superantibus, caule glabro diphylo, petalis lanceolatis acutis.—*Smith, in trans. soc. Linn.* 12, p. 243, t. 8, fig. 1.

*Hab.* “Gathered by Kalm in North America, but in what part we are unable to determine. Three of his specimens are preserved in the Linnæan herbarium.” *Smith, l. c.*

*Obs.* Planta Linnæo cum *T. palustri* & *T. alpina* omnino confusa, et secundum Smith huic nimis affinis, in America-boreali nullo nisi Kalmio detecta est. An specimina Kalmii verò in Americâ aut in Europa-boreali lecta? Plantas siccas e Gothlandiâ sub. nom. *T. calyculata* (*T. alpina, Smith*) a cl. Agardh et Casstrom miserunt, in herb. cl. Torreyi examinavi, quæ descriptione tabulâque *T. stenopetalæ* Smith benè quadrant; præsertim antheris cordatis *acutis*, nec apice emarginatis ut in *T. calyculata*.

4. *T. GLABRA*; caule infernè foliato; racemo elongato, densifloro; involucris trifidis floribus approximatis; carpellis apice distinctis, styliis vix ullis.

*Tofieldia glabra, Nutt. ! gen.* 1, p. 235, & *in trans. Am. phil. soc. (ser. 2.)* 5, p. 153; *Ram. & Schult. syst.* 7, p. 1574.

*T. glaberrima, MacBride, in Ell. ! bot. S. Car. & Georg.* 1, p. 424; *Ram. & Schult. l. c. p.* 1570; *Spreng. syst.* 2, p. 144.

*Radix* fasciculata ex *Nutt.*, ferè tuberosa ex *Ell.* *Caulis* 2—3-pedalis, supra basin 2—3-foliatius. *Folia* ferè *T. pubentis*. *Racemus* spiciformis, cylindricus, 1—5 unc. longus; pedicellis (confertis, interdum binatis) longitudine florum, bracteis subulatis paulò longioribus. *Flores* paululùm majores quam in *T. pubente*, virescenti-albi. *Perianthii* foliola ovali-oblonga. *Filamenta* crassè subulata, complanata, infernè sensim dilatata, demùm plana, 1-nerviâ. *Antheræ* oblongæ, introrsæ; loculis infernè distinctis et subdivergentibus. *Capsula* triloba, denique tripartibilis; carpellis 8—10-spermis, stylo brevissimo apiculatis: stigmata subcapitata. *Semina* lineari-oblonga.

*Hab.* In paludosis et pratis humidis propè Wilmington Carolinae super. *Nuttall!* et *Curtis!* prope Columbiam, Carolinae, infer. (*MacBride*), et in Arkansâ (*Nuttall*).

*Obs.* Facie ferè *T. pubentis*; floribus specierum verarum. Sprengel perperàm ad *T. cernuam* ducit.

2. SUBGEN. *TRIANTHA.* *Nutt.*

*SPICA* racemiformis, e fasciculis alternis sæpiùs 3-floris composita, modo florendi centrifugo: *antheræ* innatæ: *semina* utrinquè subulato-caudata.

*HERBÆ* caulibus pedicellisque pulverulento-pubentibus vel glandulosis.

5. *T. (TRIANTHA) PUBENS*; caule subnudo, asperiusculè pulverulento-pubente; spicâ multiflorâ e fasciculis subdistantibus; capsulâ vix perianthium superante.

*Tofieldia pubens*, *Dryand. in Ait. hort. Kew. (ed. 2.) p. 326*; *Ell. bot. S. Car. & Georg. 1, p. 424*; *Smith, in trans. soc. Lin. 12, p. 245*; *Torr. ! fl. 1, p. 371*; *Spreng. syst. 2, p. 144*; *Ram. & Schult. syst. 7, p. 1570*.

*T. pubescens*, *Pers. syn. 1, p. 399*; *Pursh, fl. 1, p. 246*; *Redout. Lil. t. 224*.

*T. (Triantha) pubescens*, *Nutt. gen. 1, p. 236*.

*Melanthium racemosum*, *Walt. Car. p. 126*, non *Michx.*

*Nartheceum pubens*, *Michx. fl. 1, p. 209*.

*Anthericum calyculatum*, *Linn. hort. Cliff.*; *Gron. Virg. fide Smith.*

*Rhizoma* horizontalis, subindè tuberosa *ex auct.* *Folia* linearia, elongata. *Scapus* ferè nudus, suprâ (pedicellisque præsertim) pubescentiâ subglandulari. *Spica* 1—4 unc. longa, fasciculis imis internodis brevioribus. *Pedicelli* floribus parùm longiores, singuli bracteâ parvâ, et fasciculo bracteâ communi minimâ stipati; involucro tridentato sub flore. *Perianthium* viridescenti-albidum; foliolis oblongo-obovatis, alternis



brevioribus. *Filamenta* subulata, perianthium æquantia. *Antheræ* (griseæ vel purpurascens) breviter oblongæ, basi bifidæ, demùm subcordatæ. *Capsula* brunnea, ovata, subtriloba; carpellis ad apicem coalitis, dorso carinatis, stylis divergentibus subulatis desinentibus.—Julio—Sept. floret.

*Hab.* In pinetis humidis et sylvis herbosis, a Delaware ad Alabamam! et Floridam!

6. *T. (Triantha) glutinosa*; caule infernè folioso, scabridè glanduloso; spicâ pauciflorâ c fasciculis approximatis; capsulâ perianthium superante.

*Tosfieldia (Triantha) glutinosa*, *Nutt. gen.* 1, p. 236.

*T. glutinosa*, *Willd. in mag. naturf. fr.* 2, p. 29; *Pursh, fl.* 1, p. 246; *Smith, in trans. soc. Lin.* 12, p. 246, t. 8, fig. 2; *Spreng. syst.* 7, p. 144 (excl. syn.); *Ram. & Schult. syst.* 7, p. 1571; *Bongard, veg. Sitcha*, l. c. p. 167.

*Nartheceum glutinosum*, *Michx. fl.* 1, p. 210.

*Rhizoma* horizontale, subligneum, fibris longis simplicibus. *Caulis* pedalis, gracilis, supernè nudus (quandoque folio bracteiformi) glandulis glutinosis asperulisque conspersus, infernè foliosus. *Folia* breviora quam in *T. pubente*, ferè obtusa. *Spica* ferè uncialis; fasciculis (4—6, sæpè 1-floris) coarctatis. *Pedicelli* asperulo-pubentes, sæpè glandulosi, flores vix æquantes, bractea communi latâ semiamplectante, et singuli bractea minimâ stipati: involucrum vix tridentatum et quasi truncatum a florè paululùm distans. *Perianthii* foliola oblonga vel ovali-obovata, alternis paulò longioribus. *Filamenta* perianthium demùm paulò superantia. *Antheræ* fuscæ, breviores quam in *T. pubente*, demùm rotundo-cordatæ. *Capsula* perianthio persistente ferè duplò longior, ovata, apice purpurascens; carpellis ad apicem coalitis, stylis brevibus vix divergentibus abruptè desinentibus; stigmata ferè capitata.

*Hab.* In sylvis Canadæ (a Quebec! ad lacum Mistassins *Michaux*) Michigan! Ohio! Indiana! et Americae bor.-occ usque ad insulam Sitcha! Ruthenorum.

*Obs.* *Melanthium aspericaule*, *Poir.* quod *Sprengel* ad hanc et *Ram. & Schult.* ad *T. pubentem* ducit, est *Amianthii* species.

10. PLEEA. *Michx.*

FLORES hermaphroditi. PERIANTHII foliola (lanceolata) petaloidea, basi subcoalita, exungiculata, eglandulosa, stellatim patentissima. STAMINA 9—12!; filamentis subulato-setaceis cum perianthio insertis, eodemque brevioribus. ANTHERÆ lineares, basi bifidæ, sinum affixæ (versatiles), introrsæ, biloculares; valvis post dehiscentiam dorso ad dorsum appressis. OVARIA 3, angulis internis coalita, pluriovulata, stylis brevibus subulata: stigmata simplicia. CAPSULA coriacea, ovata, triloba; carpellis polyspermis, dorso carinatis, intus dehiscentibus. SEMINA oblonga, apice setaceo-caudata.

CAULES graciles, junciformes, e rhizomatibus cæspitosis; radicibus fibrosis rubris: folia (pleraque radicalia) disticha, sempervirentia, arida, æquitantia, angustissima, acutissima; vaginis foliorum radicalium æquitantibus, caulinorum convolutio-amplectantibus, marginibus non coalitis: racemus simplex, pauci-(plerumque 6-) florus: bractee spathacæ (vaginæ foliorum superiorum similes,) pedicellos singulos bibracteolatos includentes: flores pallidè crocei ex *Michx.* et *Nutt.*! albidè extus viridescentes ex *Bot. mag.*

PLEEA, *Michx. fl.* 1, p. 247, t. 25; *Pursh, fl.* 1, p. 275; *Nutt.*! *gen.* 1, p. 261; *Ell. bot. S. Car. & Georg.* 1, p. 465; *Spreng. syst.* 2, p. 264; *Bot. mag. t.* 1956.

PLÆA. *Pers. syn.* 1, p. 451.

OBS. Genus distinctissimum, affine hic *Tofieldiæ* illic *Zigadeno*. Stigmata sessilia ex *Michaux* sunt rectè styli breves stigmatibus simplicibus desinentes.

P. TENUIFOLIA. *Michx. l. c. et Auct. cit.*

Pedalis vel bipedalis. *Folia* radicalia 8—12 unc. longa, ferè lineam lata, sensim acutissima; laminis infra apicem vaginæ ortis; caulina perpauca; summa laminâ brevi, setaceâ. *Bractææ* oblongæ, convolutæ, pedicellum penitus involvantes, cuspidatæ. *Pedicelli* unciales, angulati, medio 2 bracteolis parvis alternis muniti. *Perianthii* foliola ferè arida, subæqualia, acuta. *Filamenta* ad apicem attenuata; *antheris* fuscis. *Capsula* fusco-purpurascens, perianthio persistente brevior; carpellis sub-cymbæformibus, intus (et sæpè dorso demùm) dehiscentibus. *Semina* plurima, brunnea, biseriata, basi vix appendiculata, apice subitò caudâ gracillimâ instructa.

*Hab.* In udis apertis Carolinæ superioris propè Wilming-  
ton, *Delile!* *Nuttall!* *Curtis!* et in Carol. infer. fide *Michaux.*

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Melanthaceæ Boreali-Americanae mihi ignotæ sunt,

1. MELANTHIUM SPICATUM, *Walt. Car. p. 125.* (An  
hujus ordinis?)

2. HELONIAS GRAMINEA, *Bot. mag. t. 1599.* (Iconem non  
vidi.)

MONOGRAPH of the SPECIES OF PASIMACHUS inhabiting the UNITED STATES ; with Descriptions of two NEW GENERA, belonging to the family CARABICA. By JOHN L. LE CONTE. Read November 9th, 1845.

The genus *Pasimachus* was established by Bonelli, on two large North American *Carabica*, described by Fabricius as *Scarites*; a species discovered by Palisot de Beauvois was found to be congeneric with them, and shortly afterwards our distinguished compatriot, Mr. Say, described a fourth species. A fifth was detected in Mexico, and very recently Mr. Haldeman has added to the Fauna of the United States another, which he communicated to the scientific world, through the Academy of Natural Sciences of Philadelphia.

Having collected a great number of specimens from different parts of our country, on submitting them to examination, several new species were rendered apparent, and in view of this fact, it was thought necessary to prepare a short notice of them. To facilitate the determination of these, it was deemed expedient to introduce descriptions of the species heretofore mentioned by authors, more especially as several important characters appear to have been overlooked. The paper has thus assumed somewhat the form of a monograph, though I should scarcely wish to dignify a work so imperfect by such a name.

To avoid repetition, I follow the example of Westwood in classing with the generic marks, all those characters which appear to be constant in every species, although of such slight importance as scarcely to be regarded essential to the constitution of the genus.

*Pasimachus* is nearly allied to *Scarites*, *Acanthoscelis*, *Oxygnathus*, *Carenum*, and several other genera of the *Scaritides*, by means of its obtuse maxilla; in the first of these genera the tooth with which this organ is usually terminated, exists in a very rudimentary state, and in the others it is not perceptible. In its dentated mandibles it resembles *Carenum*, *Scarites*, and a few others. By the well-marked posterior angles of the thorax, it exhibits a leading off to-

wards *Morio*, *Catadromus*, and the other allied genera of the Harpalidæ. An approach to this is also visible in the genus *Carenum*; some of the species of which resemble *Pasimachus depressus* in the form of the thorax.

Another link in this chain will be found in the genus *Euryderus*, which with the head and body of a Harpalide, combines the palmated tibiæ of *Scarites* and its allies; in some minor points, this genus exhibits a relation to *Daptus*, and the other androgynomorphous Harpalidæ, while the genus *Gnathoxys*, (Westwood,) uniting to the oral organs of the *Feronidæ*, the antennæ, feet, and pedunculated abdomen of *Scarites*, affords still another point in the chain of affinity.

The last insect described in this paper, (which is probably congeneric with *Helluo pygmæus* (Dej.) of which, however, I do not possess a specimen,) I regard as forming one of the line of analogies connecting the *Brachinidæ*, and *Harpalidæ*, the *Scaritidæ* also tending towards the same point; in the form of the antennæ and body, it closely resembles some of the species of *Ozæna*, while its oral organs approximate it to *Morio*.

#### PASIMACHUS *Bonelli*.

CORPUS subelongatum, parallelum, apterum.

CAPUT latum, subquadratum, depressum, impressione utrinque a labio quadrante exteriori, postice tendente, et inter oculos cessante, lineaque obliqua ab angulis anticis rectis, ad impressionem, notatum.

MANDIBULÆ latæ, validæ, acutæ, dentatæ, dente lato, sinistro emarginato. Tab. I., c.

MAXILLÆ apice rotundatæ, intus dense barbatae. Tab. I., a.

LABRUM breve, latum, rugulosum, antice utrinque sinuatum.

LABIUM articulatum, magnum, antice utrinque profunde emarginatum, ita ut trilobatum videtur, lobo exteriori rotundato, medio minore, apice fere acuto. Tab. I., b.

PALPI labiales 6 radiculis, ad lobi medii latus orientes, articulis duobus liberis, 1mo elongato, cylindrico, 2do sesqui minore, ob-

conico, apice paulo truncato. Tab. 1. *b.* : *maxillares externi* articulo 1mo crassiusculo, paulo incurvato, 2ndo brevior elongato, 3io obconico, truncato : *interni*, filiformes, articulis, duobus æqualibus. Tab. I., *a.*

ANTENNÆ ante oculos ad mandibularum basin, fovea profunda, insertæ, articulo 1mo longiore, crassiore, superne concaviusculo 2ndo reliquis æquante, excepto tertio paulo longiore, ultimo ovato, fere acuto.

OCULI parvi, rotundati.

THORAX subcordatus, vel subquadratus, antice leviter emarginatus, angulis anticis acutis, postice medio obtusangulariter emarginatus, lateribus plus minusve, et præcipue ad basin, depressus; plerisque impressio obsoleta a margine ad impressiomen basalem extendit, quæ, impressio basalis exterior vocetur.

ELYTRA parallela, quibusdam convexa, aliis fere depressa, margine reflexo, postice, tum valde rotundato ex elytrorum convexitate, tum subacuminata videntur.

PEDES mediocres, postici longiores.

TIBIÆ *anticae* subpalmatæ, interne emarginatæ, externe dentibus tribus, duobus anticis longis validis armatæ : *intermediae* crassiusculæ, margine exteriori ciliis dentibusque minutis instructo, spinaque terminali valida, longa, obtusa : spinis duabus internis gracilibus acutis : *posticae* longiores, graciliores, ciliis dentibusque eodem modo, spina externa brevi, internis duabus, longis, acutis.

TARSI filiformes, articulis primis longioribus, reliquis, anticis brevibus, triangularibus : intermediis obconicis, posticis vero cylindricis, omnibus infra ciliatis.

UNGUES simplices, graciles.

LARVA *P. elongati*, latebram profundam in solo format, ibique mores larvæ Cicindekæ simulat, capite ad os latebræ appposito, prædam expectat, et victimam infelicem propius instantem, ferociter corripit : *P. marginati*, et aliorum, sub arborum emortuarum cortice vicitant.



Species hujus generis turmas tres efformant, scilicet:

§ 1. Elytra lævia, pone basin paulo dilatata, apice sub acuminata: thorax lateribus valde rotundatis, ad basin contractus, angulis recurvis.

§ 2. Elytra leviter striata, parallela, apice subrotundata: thorax (P. obsoleto exceptis) lateribus vix arcuatis, basi paulo angustior.

§ 3. Elytra sulcata, vel costis elevatis instructa, planiuscula, apice sub acuminata; thorax lateribus depressis, vix arcuatis, basi paulo angustior.

ELYTRA.	LÆVIA, MANDIBULÆ.		
	LEVITER STRIATIS STRIIS.	GLABRÆ. Thorax.	leviter impressis, depressus
		RUGOSÆ.	fortioribus, linea transversa connexis, morio.
		<i>Elytra carina humerali. impress. basal.</i>	
	ANGUSTIS; <i>basal. imp.</i>	<i>solita; impress. frontal</i>	profundis, punctulatus,
			levibus, ævis.
			longiuscula, margine remotiuscula; } elongatus.
			corpore angustiore, convexiore. }
			vix conspicuis <i>subl.</i> = (substriatus.
	LATIS SULCOS SINUIANTIBUS. <i>basal. imp.</i>	<i>basal.</i>	incurvatis, acute profundis obsoletus.
			parvis assimilis.
			rugosis, rugosus.
			lævibus, <i>+ d.</i> sublævus.
	COSTIS ELEVATIS.		quatuor indistinctis subsulcatus.
			alternatim acutioribus marginatus.

## § 1. ELYTRA LÆVIA.

*Sp. 1. depressus.*

Niger, nitidus; thorace et elytris, cyaneo-marginatis, illo impressionibus basalibus levibus; mandibulis glabris.

Habitat in provinciis australibus. Tab. I., fig. 1.

Scarites depressus. Fabr. Systema Eleuth. Vol. I., p. 123.

Niger nitidus. *Caput*, impressionibus frontalibus rectis lævibus, linea levi ad angulum capitis anteriorem extendente, rugulis paucis indistinctis notata; *mandibula* glabræ; *labrum* utrinque ad latera impressum, longitudinaliter rugosum; *antennæ* articulis quatuor primis nitidis, cæteris brunneo pilosis. *Thorax* lateribus tenuiter cyaneo-marginatus, linea longitudinali levi; impressione transversa antica margine approximata, ad latera distincta, medio leviter notata; basalibus levibus, subtriangularibus, posticè incurvis, rugulis paucis indistinctis notatis: impressione basali exteriore lata, levi. *Elytra* glabra convexa, lateribus rotundata, apice subacuminata, tenuiter cyaneo-marginata, linea punctorum elatorum juxta marginem reflexum signata; carina brevi acuta, a humero infra tendente, quæ carina humeralis vocetur. *Tibiæ* posticæ spina interior exteriore duplo longior.

\* *Sp. 2. morio.*

Niger, lævis; mandibulis glabris; thorace impressionibus basalibus profundioribus, posticè connexis.

Habitat in Carolina. a Dom. Zimmerman receptus. Tab. I., fig. 2.

Statura fere præcedentis, sed paulo latior, et minus nitidus; *Caput* impressionibus frontalibus paulo longioribus, linea solita versus angulum tendente exterius dilatata fossulaque levi interna paulo pone juncturam; *mandibula* et *antennæ* sicut in præcedente; *labrum* antice sinuatum, fossulis rugisque pluribus notatum. *Thorax* lateribus minus rotundatis; impressione transversa anteriore margine approximata, medio fere obsoleta; linea longitudinali levissima; impressione transversa posteriore fortiter notata

cum basalibus parallelis longioribus levibus juncta; basalibus exterioribus levioribus. *Elytra* lateribus paulo rotundioribus, carina humerali serieque punctorum ut in præcedente instructa; *tibie* posticæ spina interior brevior.

*Sp. 3. punctulatus.*

Niger, nitidus, sub cyaneo-marginatus; mandibulis transverso leviter rugosis, impressionibus frontalibus profundis, rugosis, linea obliqua rugulis plurimis; impressionibus thoracis basalibus subrugosis, posticæ subcoëuntibus; elytris lineis punctorum plus minusue distinctis.

Habitat in Alabama, Texas, et ad flumen Arkansas prope montes. Tab I., fig. 3.

*Pasimachus punctulatus*, Haldeman, Proceeding Ac. Nat. So., Phil.; Vol. I., p. 299.

Sequenti similimus, sed major, et subcyaneo-marginatus; *labrum* crebre striatum; *caput* impressionibus profundioribus rugosis, linea obliqua solita striolis transversis. *Thorax* lineis transversis crebris undulatis, impressionibus basalibus undulato-rugosis, interioribus approximatis. *Elytra* lineis pluribus punctorum indistinctorum, quæ interdum cessant.

\* *Sp. 4. lævis.*

Niger, nitidus; mandibulis transversè leviter rugosis; impressionibus frontalibus minus profundis, linea obliqua fossuliformi; thoracis basalibus subtriangularibus, lævibus.

Habitat New Jersey. Tab. I., fig. 4.

Niger nitidus; corpus latiusculum. *Mandibulæ* rugulis transversis notatæ; *labium* utrinque ad latera impressum anticequo leviter sinuatum; fossulis rugisque pluribus notatum; impressionibus frontalibus minus profundis, interne dilatatis; linea solita in fossulam profundam ad angulum dilatata. *Thorax* lateribus valde rotundatus, postice valde retractus; impressionibus basalibus rectis lævibus, exteriore transversa, recta, levi. *Elytra* omnino ut in *depresso*.

\* *Sp. 5. elongatus.*

Angustior; niger, nitidus; thorace, clytrisque cyaneo-marginatus; mandibulis, labio, impressionibusque capitis et thoracis rugosis; carina humerali longiore.

Habitat in Territorio Missouriensi ubique. Tab. I., fig. 5.

*Pasimachus depressus*, var. a. Say. Trans. Am. Philos. Soc., New Series, Vol. II., p. 19.

Niger nitidus; corpus angustius, convexiusculum; *mandibulæ* transverse rugosæ, *labrum* fortiter striatum, versus medium utrinque impressum; impressionibus frontalibus profundis, rugulis paucis indistinctis; linea obliqua fortiter impressa, rugis notata. *Thorax* lateribus minus rotundatus cæruleo-marginatus; impressione transversa anteriore ad latera profunda, medio obsoleta; linea longitudinali satis distincta; basalibus triangularibus profundis, rugulis paucis notatis. *Elytra* longiora, angustiora, apice minus subacuminata, cæruleo-marginata, lineis punctorum levibus notata, quæ sicut in punctulato, interdum obsoletæ sunt.

## § 2. ELYTRA STRIATA.

\* *Sp. 6. substriatus.*

Niger, nitidus, subcyaneo-marginatus; mandibulis oblique striatis impressionibus frontalibus postice obsoletis, antice rugosis; thoracis impressionibus parvis, triangularibus, profundis, rugosis; clytris levissime striatis, transverseque rugosis.

Habitat Long Island, provinciæ Novi Eboraci. Tab. I., fig. 6.

*Pasimachus substriatus*, *LeConte*, per Halderman, Proceed. Ac. Nat. Sc. Phil. Vol. I. p. 313.

Niger, nitidus, subcyaneo-marginatus; *caput* rugulis paucis pone oculos; impressionibus frontalibus postice vix conspicuis, antice rugis paucis, linea obliqua profunda, valida, rugulis notata; *labrum* rugosum, antice medio tridentatum, dente intermedio majore, rotundato; *mandibulæ* oblique striatæ. *Thorax* rugulis paucis ad latera, margine subcyanea, angulis posticis obtusis; impressione

transversa anteriore, medio obsoleta; linea longitudinali satis distincta, impressione lata levi ad dodrantem; impressionibus basalibus parvis, profundis, triangularibus, rugis paucis brevibus notatis. *Elytra* parallela, convexa, apice subacuminato-rotundata, cyaneo-marginata, levissime et obsoletissime striata, striis latis, exterioribus paulo evidentioribus, rugis nonnullis obsoletis transversis. *Tibiæ* intermediæ breviusculæ.

\* *Sp. 7. obsoletus.*

Niger, nitidus; mandibulis leviter striatis; impressionibus frontalibus profundis, rugosulis notatis; basalibus profundis, rugosis, incurvatis; elytris sulcis tribus exteris evidentioribus, reliquis obsoletis, linea simplici punctorum notatis.

Habitat ad flumen Platte, prope Rocky Mountains. Tab. I., fig. 7.

Niger nitidus subcyaneo-marginatus. *Mandibulæ* leviter striatæ; *labrum* utrinque striatum, medio magis exstans, læve; impressiones frontales profundæ, marginem anticum capitis attingentes, rugosulis pluribus notatæ; linea obliqua valida. *Thorax* postice retractus, margine rotundatus, angulis posticis rectis; impressionibus basalibus profundis, rugosis incurvatis, medio fere coeuntibus; linea longitudinali tenui. *Elytra* minus parallela, pone humeros paulo dilatata; propterea, sectionis primæ formam assumit corpus; sulcis duobus externis distinctis, tertioque satis notato, reliquis obsoletissimis, lineis quinque punctorum simplicibus substitutis, Cæteris præcedentes assimilat.

\* *Sp. 8. assimilis.*

Niger, nitidus, subcyaneo-marginatus; mandibulis oblique striatis impressionibus frontalibus rugulis paucis anticis; thorace ruguloso; impressionibus basalibus levibus; elytris opaciusculis, striatis, striis leviter rugose-punctatis.

Habitat in Georgia, rarius. Tab. I., fig. 8.

Niger nitidus, subcyaneo-marginatus; *mandibulæ* oblique ru-

*gosa*, *labrum* sicut in *substriato*; impressionibus frontalibus rectis, antice rugulosis, linea obliqua profunda. *Thoracis* forma *substriatum*, et sequentes omnino refert, minus tamen antice rotundatus, rugulis indistinctis, præsertim ad latera notatus; impressione transversa anteriore, margine approximata, medio oblitterata, linea longitudinali distincta; basalibus levibus, ad marginem subextendentibus. *Elytra* parallela, convexa, postice sub-rotundata, cyaneo-marginata, minus nitida, striata, striis rugose-punctatis, externis latioribus, sulcos effingentibus, 3ia. et 7ma. 5ta. et 6ta. versus apicem conjunctis. Cæteris præcedentes refert.

\* *Sp. 9. rugosus.*

Latiusculus, cyaneo-marginatus; mandibulis rugosis; impressionibus frontalibus levibus, linea obliqua profunda, excavata; thoracis basalibus incurvatis parvis, rugosis; elytris striis latioribus.

Habitat in Nova Cæsarea. Tab. II., fig. 1.

*Corpus* latius, convexiusculum, nigrum, cyaneo-marginatum, *mandibulæ* et *labrum* sicut in præcedente: impressionibus frontalibus levibus; linea obliqua exarata, profunda, lævi; *thorax* lateribus antice vix rotundatis, angulis anticis acutis, posticis obtusis; impressione transversa anteriore, medio oblitterata, distincta ad latera; linea longitudinali profunda, rugulis paucis transversis intersecta; basalibus brevibus, postice incurvatis, rugosis, rugisque nonnullis versus angulum posticum. *Elytra* ut in præcedente, sed striæ paulo latiores, 3ia. et. 4ta. 5ta. et 6ta. conjunctis.

*Sp. 10. sublævis.*

Latiusculus, cyaneo-marginatus; mandibulis rugosis, impressionibus frontalibus latis rugulosis, linea obliqua distincta, basalibus oblongis, rectis, lævibus, elytris striis (exceptis primis duabus) latioribus, sulcos simulantibus.

Habitat in Georgia. Tab. II., fig. 2.

Scarites sublævis. *Palisot de Beauvois. Insectes d'Afrique et d'Amerique*, p. 107.



Statura fere præcedentis, paulo latior; *mandibulis* et *labro* priores refert: impressionibus frontalibus longioribus, latis, subrugosis; linea obliqua, distincta, rugulis notata. *Thorax* margine versus angulum posticum latiore; basi non marginatus (quo ab omnibus aliis differt); impressione transversa anteriore medio oblitterata; linea longitudinali distincta; basalibus longioribus, rectis, postice incurvatis, profundis, lævibus. *Elytra* striis externis profundioribus, prima angusta, inconspicua, reliquis latis, sulcos simulantis, 3ia. et 4ta. 5ta. et 6ta. versus apicem coeuntibus, omnibus inconspicue rugoso-punctatis.

### § 3. ELYTRA COSTIS ELEVATIS.

#### *Sp. 11. subsulcatus.*

Depressior, postice sub-acuminatus, niger, cyaneo-marginatus: *mandibulis* fere glabris; impressionibus frontalibus profundis, cyaneo-micantibus; impressionibus basalibus profundis, lævibus; *elytris* costis subelevatis indistinctissimis.

Habitat in provinciis australibus, rarius. Tab. II., *fig. 3.*

*Pasimachus subsulcatus.* Say. Trans. Am. Philos. Soc. New Series, Vol. XI., p. 19.

*Corpus* depressum, postice subacuminatum, cyaneo-marginatum, *mandibule* rugulis paucis obsoletis; *labrum* utrinque foveolistris, antice sub-tridentatum; impressionibus frontalibus profundis, latis, violaceo-submicantibus; linea obliqua distincta transverse rugosa. *Thorax* subquadratus, antice emarginatus, angulis anticis acutis, lateribus leviter rotundatis, margine reflexo, angulis posticis subrectis: impressione transversa anteriore margine approximata, medio vix distincta: linea longitudinali bene notata; basalibus profundis, postice subcoeuntibus, violaceo-submicantibus, cum impressione altera, juxta marginem, subrotunda. *Elytra* costis elatis obsoletis, (prope suturam oblitteratis,) alternatim evidentioribus, margine reflexo. Subtus violaceomicans, abdomen nigrum.

*Sp. 12. marginatus.*

Depressior, postice sub-acuminatus : niger violaceo-marginatus ; mandibulæ subrugosæ ; impressionibus frontalibus latis, rugosis, postice sub-coentibus, thoracis margine depresso, latiusculo, basilibus latis minime profundis, elytra 7-costata, costis alternatim evidentioribus.

Habitat in provinciis australibus, communius. Tab. II., *fig. 1.*

Scarites marginatus Fabr. Sys. Eleuth. p. 123. Pasimachus sulcatus Mac Leay. Dej. Cat.

Niger, opaciusculus, depressior, postice subacuminatus, sub-violaceo marginatus ; *mandibulæ* rugis paucis indistinctis ; *labrum* profunde impressum, antice subtridentatum ; impressiones frontales latæ, subrugosæ, violaceo-micantes, postice subcoeuntes linea obliqua distincta. *Thorax* subquadratus lateribus leviter rotundatus, depressis, violaceis versus basin latioribus ; impressione transversa anteriore distincta, basilibus latis, geminis, levibus, interiore subtriangulari, postice versus medium tendente, exteriori subrotunda ; linea longitudinali distincta. *Elytra* costis septem elevatis, nitidioribus, suturali vix distincta, 2da. et 4ta. 6ta. et 7ma. distinctioribus, postice cocuntibus. Subtus subviolaceo-micans ; abdomen nigrum.

EURYDERUS, *Nov. Gen.*

CORPUS crassum, ellipticum, convexum, alatum.

CAPUT triangulare, postice non retractum.

MANDIBULÆ validæ, obtusæ, dente parvo prope basin. Tab. II., *fig. 5, c.*

MAXILLÆ angustæ, apice incurvatæ, valde acutæ, intus ciliatæ. Tab. II., *fig. 5, b.*

LABRUM subquadratum. angulis anticis rotundatis.

LABIUM antice profunde emarginatum, basi emarginationis subrecta.

PALPI *labiales* filiformes, articulis duobus æqualibus, ultimo ovali apice paulo truncato. Tab. II., *fig. 5, b.*

*maxillares* filiformes, articulis subæqualibus, ultimis paulo brevioribus, ovalibus, apice paulo truncatis.

interni parvi, tenues. Tab. II., *fig. 5, b.*

**ANTENNÆ** ad mandibularum basin, juxta oculos insertæ; articulo primo longiore, crassiore, reliquis æqualibus, quinto sequentibusque submoniliformibus, ultimo ovali. Tab. II. *fig. 5. a.*

**OCULI** mediocres rotundati.

**THORAX** subquadratus, longitudine duplo latior, antice leviter emarginatus, angulis obtusis, lateribus rotundatus, ad basin rectum depressis, angulis posticis planis rectis.

**ELYTRA** thorace haud latiora, parallela, apice rotundata, stria rudimentali inter primam et secundam posita.

**SCUTELLUM** mediocre.

**PEDES** validæ.

**TIBIÆ** anticæ subpalmatæ, latæ, extus subemarginatæ, dento anteriore producto, obtuso, intus profunde emarginatæ, calcare antico magno crasso.

intermediæ et posticæ extus ciliatæ.

**TARSI** anticæ articulis triangularibus, maris, fœminæque similes, reliqui subfiliformes. Tab. II. *fig. 5. d.*

**COXÆ** posticæ externe productæ, apice acutæ.

**UNGUES** simplices, graciles.

Genus hocce ad Harpalidarum familiam pertinet.

\* *E. zabroides.*

Niger, nitidus, elytris interstitio 2ndo. 4to. et 6to. punctorum serie notatis.

Habitat apud flumen Platte supra furcationem, solo vagans. Tab. II. *fig. 5.*

Niger nitidus; *labrum* setis parvis nonnullis; *antennæ* articulis primis quatuor setis paucis, reliquis brunneo-pilosis. *Capri* impressionibus duabus inter oculos, brevibus, latis, sparso punctatis, linea transversa antice connexis. *Thorax* margine depresso, punctato, prope basin latiore, setis longis nonnullis c punctis magnis juxta marginem orientibus; ante impressionem transversam distinctam punctis paucis notatus; linea longitudinali distincta: basi pone

impressionem transversam posticam, depressa, punctata ; basalibus distinctis punctatis. *Scutellum* læve. *Elytra* striata, stria rudimentali longa, interstitio 2do. 4to. et 6to. serie punctorum, e quibus oriuntur setæ longæ. *Epipleura* punctis impressis setiferis. *Pedes* et *abdomen* setis plurimis instructi.

PSYDRUS. *gen. nov.*

CORPUS depressum, subelongatum.

CAPUT latum, triangulare, pone oculos constrictum.

MANDIBULÆ validæ acutæ.

MAXILLÆ apice incurvatæ acuminatæ.

LABRUM breve, leviter emarginatum.

LABIUM magnum, concavum, profundo emarginatum, dente nullo.

Tab. II, *fig.* 6, *b.*

PALPI *labiales* breves, articulo ultimo paulo longiore, crassiore, apice truncato.

*maxillares* externi, articulo penultimo duplo brevior, ultimo apice truncato.

interni tenuous.

ANTENNÆ apice paulo incrassatæ, setiferæ : articulo primo longiore, crasso, secundo, quarto, et sequentibus moniliformibus, æqualibus, 3io. paulo longiore, ultimo majore ovali. Tab.

II, *fig.* 6, *a.*

OCULI rotundati prominentes.

THORAX subcordatus, lateribus rotundatus, basi retractus, angulis posticis acute rectis.

ELYTRA thorace latiora, plana, apice neque sinuata nec truncata.

PEDES mediocres.

TARSI latiusculi ; antici, articulis triangularibus, penultimo parvo.

TIBIÆ anticæ, intus profundo emarginatæ.

UNGUES simplices.

COXÆ posticæ, latæ apice truncatæ.

Genus hocce post Ozænam Brachinidarum ponendum.

\* *P. picus*.

*Piceus nitidus*, capite, thoraceque punctatis; clytris profunde striato-punctatis, interstitiis punctis parvis serie dispositis.

Habitat ad Eagle River, lacus Superioris. Tab. II. *fig.* 6.

*Piceus*, nitidus; *caput* punctatum, impressiones frontales longæ obliquæ, profundæ, grosse punctatæ, setisque paucis. *Os* ferrugineum. *Antennæ* articulis tribus primis glabris, reliquis brunneo-pilosis. *Thorax* tam latus quam longus, punctatus, densius prope basin, antice non emarginatus, lateribus tenuissime marginatus, setis tribus longis, ad angulum anticum, medio, et ad angulum posticum positis; linea longitudinali bene notata, impressione transversa antica distincta, margine remota: postica valde profunda, basalibus brevibus, profundis, basi depresso-cocuntibus. *Elytra* thorace latiora, latitudine duplo longiora, angulis humeralibus rotundatis, profunde striato-punctatis, interstitiis planis, punctis minutis, ordine dispositis; setis longis nonnullis e serie punctorum marginali orientibus; *epipleuris* concavis lævibus. Subtus punctatus; *tibiæ* et *tarsi* brunnei, pilosi.

Description of A NEW SPECIES OF APUS, by JOHN LE CONTE, F.  
L. S., &c. Read December 8th, 1845.

Among the many valuable objects of Natural History which my son procured during his late journey to the Rocky Mountains, one of the most interesting is the small crustaceous animal, which is the subject of the present communication.

The genus *Apus*, originally considered by Linné, along with the *Limulus* or Horse-shoe Crab of our own sea coast, as species of *Monoculus*, received its present name from the illustrious John Anthony Scopoli. To both the genera *Monoculus* and *Limulus*, it bears a striking external resemblance, particularly to the latter: indeed, if we consider its facies alone (setting aside the naked tail,) we should be very apt to conclude that it was a close congener of them. But when properly studied, there will be found a vast interval between these animals, both as regards the structure of the body, and the detail of the oral and masticatory organs. This interval is undoubtedly filled up by numerous beings, either not known or not yet sufficiently examined; "*Natura enim non facit saltus*:" Savigny has observed that there is as much difference between them as between a crab and a spider (*phalangium*.)

But three species of *Apus* are known to Naturalists; the *A. cancriformis* the *A. productus* of Leach, by him called *Lepidurus*, and the *A. Montagu*, of the same author. The first and last of these are readily distinguished from our species by the shortness of the caudal extremity, and the other by having an oval horizontal lamina extending from the emargination of the last joint of the tail.\*

It may not be amiss to observe here, that the animal described by Mr. Say, in the Journal of the Academy of Natural Sciences of Philadelphia, vol. 1, page 437, and considered by Dr. Dekay, in the fifth volume of the Natural History of this State, as an *Apus*, cannot belong to the same genus as this which we are now considering, as it was found parasitic on a crab, and has but two eyes; from the very imperfect description, it is impossible to say what it is. It seems to have some relation to *Caligus*, but as I ob-

\* In the first volume of Major Long's Expedition to the Rocky Mountains, mention is made of a species of *Apus*, three-tenths of an inch in length, but no detailed description is given: it may belong to some other genus of Crustacea.



served before, it is impossible to determine where it should be arranged.

\* *APUS LONGICAUDATUS.*

Pale brown: *buckler* large, thin, gibbous, nearly round, carinate on the middle of the back, deeply emarginate behind, the edges of the emargination fringed with short spines: *eyes* three, simple, the two anterior larger, approximate, somewhat lunate, the third one round, placed in the middle behind the two others: *antennæ* very short, inserted near the mandibles, two-jointed, joints cylindrical, subequal, the second joints somewhat acuminate and naked at the tip: first pair of *feet*, or as they have been called, exterior antennæ, furnished with four articulated filaments; of these filaments, the outer one is longer than the body, the next half the length of the first, the third about one third the length of the second, and the fourth very short: the other feet, amounting to ten pair, are flattened, trifid at the tip, the intermediate division being the longest, furnished on the inner side with a short branch, and externally with a broad lamina; below these feet are twelve pair of laminae, the five anterior pair larger, the seven smaller pair reaching to the vent, which is covered by the last pair; these laminae are complicated in their structure, and ciliate with short hairs: *tail* long, consisting of sixteen joints counting downwards from the vent, the last one the longest, somewhat coriaceous, emarginate and ending in two long articulated naked filaments, the joints of the tail and of the filaments are furnished each with a row of small spines, which run entirely round.

Length to the end of the tail, 1.5 of an inch, of the buckler, .65, breadth of the same, .7.

Plate III., fig. 1. (a.) one of the feet. (b.) one of the laminae.

Of the habits of this animal, we know but little; it was found in immense numbers in a small shallow lake on the high plateau between Lodge-pole creek and Crow creek, north-east of Long's peak: they were swimming about with great activity, plunging to the bottom and rising to the surface. All of them that were caught appear to be males, at least none of them have any ova attached: the common species in Europe, *A. cancriformis*, on the contrary, has never been found but of the opposite sex.

Description of THREE NEW FOSSILS from the FALLS of the OHIO,  
by ISAACHAR COZZENS. Read December 8th, 1845.

Although many of the states have employed competent geologists to explore their territories, it cannot be but that many objects of Natural History must unavoidably have been unnoticed by them; this, I suppose to have been the case with the fossils I am to describe.

About the year 1840, the late Rev. Benjamin O. Peers put into my hands a number of fossils, which he informed me were obtained at the falls of the Ohio river. After due examination of some twenty or thirty distinct species, I selected three, which I believe to have been hitherto undescribed. One of these, of which I have three specimens, appears to be the buckler of a crustaceous animal; the other two are shells belonging to the classes mollusca and conchifera; the one a bivalve, and allied to the Spirifer of Sowerby or Delthyris of Dalman; the other a univalve, belonging to the family of Orthocerata. I shall begin by describing the Crustacean.

Genus Piliolites, (from *πῖλος*, a scull cap.)

*Buckler* gibbous, anterior and posterior margins, with a groove; the anterior groove deeper than the posterior, more slightly grooved on the sides.

\* OHIOENSIS. Buckler gibbous, ovate, arched, margined, anterior margin smaller and sloping downwards; posterior, thicker and turning up; lateral margins very small. Plate X. fig. 1, *a. b.*

The three specimens from which this description is made, are all precisely alike, both in form and size. They have the appearance or shape of that part of the human skull which is above the eyes and ears; across the front is a furrow, and at the ends of this furrow are placed small protuberances resembling eye-brows, under these protuberances, the eyes were most probably situated as in living crabs. The nearest recent species which this fossil relict resembles, is the *Leucosia craniolaris*, Fabr.; but in this animal the front of

the buckler is prolonged, whilst in our species it is truncated. In the *Leucosia* the posterior part is truncated, in this it is rounded. The specimens which I have are the mere bucklers of the animals, without legs, claws, branchiæ, or antennæ, and resemble the rejected shells of ordinary Crustacea. There are on the crown or top of all the specimens, regularly waved lines or grooves; on each side of the slope, corresponding to each other, in one specimen, these lines are dark-coloured; in another the colour is faint, but the grooves deeper and more distinct, and in the third, they are almost obsolete. The cavity on the under side of the buckler being entirely filled with chrystaline lime-stone, prevents any description of that part of the animal being made: length 0.9 inch, breadth 0.7 inch.

#### GENUS PENTAGONIA.

*Shell* bivalve, inequivalve, having five sides, somewhat gaping; lower valve with three sides, upper with two; *beaks* contiguous.

##### \* *P. Peersii*.

*Shell* somewhat gaping, with five sides and three carinæ; two of the carinæ on the lower valve commence at the beak, and diverge towards the margin, and end at the opening, the valve being concave between them; the lateral margins small and nearly vertical, an elevated carina on the middle of the upper valve, rendering its sides somewhat concave. This carina has a shallow furrow in it, commencing at the beak and running more than half way along the shell towards the opening. On each side of the upper valve and contiguous to the beaks, are two angular protuberances, giving the shell when viewed at the beaks, a pentagonal appearance, and at the same time a visage-form look: length 1.1 inch. breadth 0.9 inch. Plate X. fig. 2, *a. b.*

The cavity of this shell was filled with the same limestone as the *Piliolites*.

#### GENUS CONULITES.

*Shell* pyramidal, somewhat quadrangular, with the planes somewhat curved, *aperture* wide and festooned by lines of growth.

\* *C. elevata*.

Shell conical or pyramidal, with four nearly equal sides, the plane of the sides more or less rounded, one of the sides nearly flat, the opposite corresponding one more rounded, the other two sides respectively, are neither so flat nor so rounded: substance of the shell very thin. Plate X. fig. 3.

This fossil is of a pyramidal form from the aperture upwards; it has annular waved transverse lines in succession from the apex to the mouth; these lines are subimbricate, lying partly on one another; at the opening there are four lips, one on each side corresponding to the planes, and prolonged downwards; at each corner of the pyramidal form and at the opening, the transverse lines are drawn up, forming with the lips a sort of festoon around the base. The cavity of this shell is filled with the same substance as the preceding species. The limestone from which these fossils were taken, is of a grey colour and chrystaline texture; it is not generally known whether it belongs to the Silurian or Carboniferous series.

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On certain COLEOPTERA, indigenous to the EASTERN and WESTERN CONTINENTS. By JOHN L. LE CONTE.

Read January 19th, 1846.

The number of forms of animal life common to the two continents is far from being great; and it is therefore presumed that any new examples of such extensive distribution will not be without interest to the student of nature. Many of the species which are found on either continent, were undoubtedly introduced from one to the other, in the ordinary articles of commerce. Thus, for instance, *Calandra oryzae* has been brought in rice; *Ptinus fur*, *Anthrenus muscorum* and *pimpinella*, several species of *Dermestes*, *Attagenus*, and many others belonging to different orders of insects, would accompany the various necessities of life, or the numberless articles of luxury which are continually crossing the ocean. *Carabus*

*auratus* has been carried in the earth surrounding the roots of trees. So varied, in truth, is the habitation of the insect world, that almost every conceivable importation may serve as the nidus of some species, which radiating from this point may, in the course of time, become completely naturalized in a foreign land.

There are, however, other kinds for whose presence in this country no such satisfactory reason can be assigned. They are not confined to the more settled portions of our republic, nor is their occurrence a matter of such rarity as to render it probable that their abode on this continent has been of short duration. It is to these mainly that we shall confine our attention.

It is not intended in this essay to enter into a detailed examination of the various theories which have been proposed, in order to account for these coincidences of production: any generalizations from the few facts at present possessed on the subject, would be altogether premature. Patient investigation must first make known the limits of the distribution of these animals, and then we may hope to evolve a theory suitable to the results obtained.

Any such reputed fact, as the discovery of a species on this continent, which has heretofore been supposed to be confined to the old world, should be received with extreme hesitation, and admitted as correct only after the most rigid examination. Many such pretended discoveries have been overthrown by the increase of our knowledge; similar assertions should therefore be submitted to the strictest scrutiny.

Entering for a short time into the regions of speculation, we might easily suppose *a priori*, that in the operation of the general laws of creation, which probably obtain throughout the physical universe, the productions of the two hemispheres would approximate in character, according as the circumstances under which they originated were more or less similar. Now one of the most efficient of these circumstances, because one that always continues acting with equal force, is a similarity of climate. It is also a fact, almost self-evident indeed, from physical considerations, that the climates of the two continents approach more nearly to each other, the farther we proceed north; it might therefore be inferred that the similari-

ties between the animal inhabitants of the eastern and western world would be much more evident the nearer we approach the arctic circle. Such in reality is found to be the case; and if we admit that the creative power in nature works by uniform and general laws, it will no longer be matter of surprise, that exactly similar circumstances should occur in a few instances, and thus give rise to organized products, so nearly resembling each other, that in the present state of our knowledge they must be considered identical.

It must be confessed that no general laws in the creative organic power have yet been shown; nor is it at all probable that any such can be rendered physically evident by human intellect. Their existence must always be regarded as a matter of inference, rather than an opinion susceptible of direct proof. It is still a question of dispute between philosophers, whether the creation of a species is to be ascribed to a direct manifestation of a supernatural agency, or whether the Deity, in this, as in every department of nature which has yet been brought within the scope of scientific research, operates by universal laws impressed upon matter. From the gradual increase in complexity of development which is made apparent in following out the history of any individual organ, it seems probable that such laws do exist; otherwise there would be no special reason why the same organ should be formed throughout the whole chain of animated nature, by the gradual expansion of a single, uniform type.

If, on the other hand, we were to allow the distinct, and separate exercise of omnipotence, for the creation of each separate and distinct species, would it not be limiting the power of the Creator far below our proper ideas of his greatness, to suppose that one primary form alone would suffice for each essential organ, and that all others must be derived from this original type?

But enough has been already said on this obscure subject, which may properly be called the metaphysics of Natural History. Let us pass then to some practical examples of the identity of production above referred to.

1. *Loricera pilicornis* Fabr.—Several specimens of this curious insect were found floating in Lake Superior at Kewenaw Point.



After a most attentive examination, no difference can be perceived between our specimens, and those from the north of Europe.

2. *Bembidium impressum* Fabr.—Occurs abundantly about Lake Superior. Dr. Richardson's party also found it in many northern situations.

3. *Bembidium paludosum* Fabr.—This species inhabits the banks of streams emptying into Lake Superior. It is to be carefully distinguished from *B. inaequale* Say, which it closely resembles, and which I obtained near the Rocky mountains.

4. *Silpha Lapponica* Fabr.—*caudata* Say.—This insect is found in every part of the continent, from the Atlantic to the Pacific, north of 42°.

5. *Corynetes (Necrobia) violaceus* Fabr.—This necrophage appears to increase in numbers, the farther it is removed from the haunts of man: in the barren regions adjoining the Rocky Mountains, where insects reign in almost undisputed mastery, unchecked by scarce a single foe, it may be observed covering the ground under any small piece of animal matter, which has been overlooked by the wolves and ravens, or which has defied the power of their teeth and beaks.

6. *Bostrichus typographus* and others of the same genus. Abundant in every place under the bark of pine trees.

7. *Coccinella 3-fasciata* Fabr.—from Lake Superior.

8. *Hippodamia 13-punctata* Fabr. found every where.

In these species, as in the preceding, observation fails to detect the slightest difference between the American and European specimens.

Several other examples might be easily adduced, but to some of them it would be urged, that by some possibility they might have been introduced. In the selections made, all such have been carefully avoided, and those have likewise been excluded, which have not been submitted to a strict comparison with well authenticated individuals from the old world.

Many instances might likewise be obtained from other orders of insects; as *Vanessa Cardui*, and some species of *Pieris* from the

Lepidopera; the first of which is found in every part of the globe. As however the attention of the writer has been directed more particularly to the Coleoptera, the species referred to, have been exclusively of that order.

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DESCRIPTION OF SOME NEW SPECIES OF SHELLS. By JOHN H. REDFIELD. Read January 26th, 1846.

MARGINELLA FLAVIDA. Plate X. fig. 4, a. b.—*Cabinet of the Lyceum.*

*M. testâ parvâ, ovatâ, lævi ssimâ, flavidâ, sæpè fasciis tribus sub-rufis; labro albo, crasso, reflexo, intus obsoletè denticulato: aperturâ luteâ: spirâ brevè conicâ, apice rubro; columellâ quadripliatâ.*

*Shell* small, ovate, highly polished, yellowish white, sometimes crossed by three reddish bands, of which the uppermost is immediately beneath the suture. Lip white, strongly thickened, obtusely reflected, extending a little upon the penultimate whorl, and indistinctly denticulate within. Spire short, and tipped with red or brown. Columella with four plaits, all oblique, the lower ones the most so: a slight callosity upon its upper part near its junction with the outer lip. Aperture bright yellow sometimes verging upon brown, and deepest near the extremities: length, 0.47 inch: breadth, 0.31 inch.

*Habitat*, Cuba and Bahama Islands.

REMARKS.—This little species though familiar to collectors, does not appear to have been described. It occupies an intermediate position between *Marginella conoidalis*, Kiener, and *M. diaphana*, Kiener. The three species are each well defined, and constitute an interesting little group. The one just described, differs from the *M. conoidalis* in its yellowish color, in being less solid, and in being destitute of the reddish dots usually found upon the outer margin of that species. The *M. diaphana*, on the other hand, is a

still thinner and lighter shell than the *M. flavida*, of a deeper yellow, and has the outer margin of its lip stained with orange-red. Some conchologists have referred the shell before us to the *M. apicina*, Menke, (Synopsis meth. mollusc.) Menke's description, however, which is accompanied by no figure, is so short and indefinite as to apply equally well to two or three species, and on reference to specimens of *M. apicina*, in the cabinet of Dr. Jay, received by him from Europe under that name, they proved to be well characterized specimens of *M. conoidalis*, Kiener, possessing the dots upon the outer lip peculiar to that species. Hinds, (Proc. Zool. Soc. April, 1844,) has described a *Marginella livida* from Cuba, which is evidently related to this group, and may perhaps be identical with *M. conoidalis*.

MARGINELLA OBESA. Plate X. fig. 5, *a. b.*—*Cabinet of the Lyceum.*

Testâ ovatâ, tumidâ, lævissimâ, albido-lutescente, lineis transversis confertissimis interruptis fuscis aut nigris, in flammulis undulatis longitudinalibus dispositis; spirâ obtectâ, maculis fuscis circumdatâ: labro intus obsoletè crenulato, extus sæpè nigro maculato; columellâ sex vel octo-plicatâ; plicis quatuor inferioribus distinctis obliquis; alteris superioribus obsoletis transversis.

*Shell* ovate, tumid, highly polished; color yellowish-white with crowded transverse interrupted lines of dark brown, which are inclined to be grouped in longitudinal undulations. A vitreous enamel coats the whole shell, so as slightly to obscure the markings. The spire, which would be nearly concealed by the last whorl, is entirely covered by this enamel, and is surrounded by five or six dark brown speckles. The lip is obsoletely toothed within; without, it is not distinctly margined, is more of a yellowish cast than the rest of the shell, and usually has from one to three black spots or irregular blotches. The columella has from six to eight folds; the uppermost three or four are very small, while the lowest but one is large, slightly bifid within, and extends outwardly into an elevated

callosity which reaches nearly to the basal notch; between the basal notch and this callosity is usually a brownish spot: length, 0.55 inch: breadth, 0.36 inch.

*Habitat*, Caribbean Sea at Carthagera, S. A.

REMARKS.—This beautiful little *Marginella* was forwarded me from Carthagera, by W. W. Whitney, Esq. It occurs abundantly in company with *M. interrupta* Lam. and in its general aspect is so much like that, as to be easily mistaken for it. But an attentive examination of a large number of individuals of each species has convinced me that they are entirely distinct. The *M. interrupta* is less tumid, and the outer margin of its lip is wrinkled and most distinctly defined. The lip of the *M. obesa* is outwardly smooth, and has so little distinctness of outline that when the shell is placed with the back upwards, it might be taken for a *Cypræa*. The *M. interrupta* has often one or more reddish blotches upon the back of the shell; these I have never seen distinctly developed in the *M. obesa*. On the other hand, the *M. interrupta* is destitute of the black speckles which surround the spire of the *M. obesa*, and of the black spots, which in the latter occur upon the outer margin of the lip, and near the base of the columella.

TRITON OREGONENSE. Plate XI. fig. 2, *a, b*,—*Cabinet of Dr. B. W. Budd. Cabinet of Naval Lyceum, Brooklyn.*

Testâ fusiformi, elongatâ, tenui, albidâ, epidermide hirsutâ fusca indutâ; aufractibus rotundatis; plicis longitudinalibus, costis et sulcis transversis valdè decussatis; varicibus exilibus; aperturâ ovatâ, canaliculatâ, albâ.

*Shell* fusiform, elongate; thin, whitish, covered with a rough, hairy, brown epidermis; the whorls are rounded, with from 18 to 25 longitudinal folds which are cancellated by transverse ribs and furrows. There are four or five of these ribs on each of the upper whorls, and each rib is divided by a slight furrow, while the intervening hollows are in like manner divided by a slight ridge. The last whorl has from 10 to 15 transverse ribs, and their bifid character is not so conspicuous as upon the upper whorls. The varices are about 12 in number, not prominent, and are crossed by

the ribs already mentioned. Aperture ovate, elongate, extending downwards into an open canal; the exterior ribs and folds plainly visible within. When mature the right lip is slightly thickened into a varix. The columella shows upon its upper part the transverse ridges of the shell, the lower portion is smooth and somewhat twisted; a slight umbilical trace is seen where the pillar lip is applied to the base of the shell: length, 4.25 inches, breadth, 2 inches.

*Habitat*, Straits of St. Juan de Fuca, Oregon.

REMARKS.—I am indebted to the kindness of Dr. Budd, for the opportunity of describing this curious shell. In form it resembles the *Fusus antiquus* (Lin.) Lam. It is very nearly allied to *T. cancellatum*, Lam. and to *T. scabrum*, King, but it is readily distinguished from the former, by the absence of the elevated tooth or ridge which is found upon the upper portion of the columella in that species, while from the *T. scabrum* it is distinguished by its greater size, its elongation, the rounded character of its whorls, its longer canal, and its more prominent cancellation. Its varices also, though not very prominent, are more so than in either of the species just mentioned.

RANELLA THERSITES. Plate X. fig. 6, *a. b.*—*My Cabinet—Cabinets of Dr. B. W. Budd, C. M. Wheatley and N. B. Wilbur.*

Testâ ovatâ, gibbosâ, albido-lutescente, tuberculatâ et transversim sulcatâ; tuberculis elevatis, acutis, compressis, interdum distortis; varicibus transversè rugosis, ad suturas canali instructis; aperturâ flavâ, utrâque extremitate canaliculatâ; margine dentato, in-crassato; columellâ rugosâ.

*Shell* ovate, gibbous, composed of about seven whorls. The upper whorls are angular at the middle and furnished at the angle with a series of elevated, horizontally compressed, pointed tubercles. These become quite large upon the last whorl and show an inclination to distortion. The spire usually has three of these tubercles between each varix, but on the back of the last whorl, the number varies from one to three, one of the tubercles being some-

times unduly enlarged at the expense of one or more of the remaining ones, thus giving the shell unusual gibbosity. The shell is also crossed by numerous revolving elevated lines, two of which are more prominent than the others, especially at the point where they cross the varices. The uppermost of these ridges supports the series of tubercles already mentioned, the other is occasionally elevated at irregular intervals into a few tubercles of much smaller size than those upon the upper. The varices are transversely rugose. Aperture ovate, extending upwards into a deeply hollowed channel, the remains of which are very apparent on each of the last three whorls, at the junction of the varix with the suture. Right lip thickened and strongly denticulate. Columella transversely wrinkled. Color yellowish white or light fawn, obscurely and irregularly clouded with reddish brown, and the last whorl is crossed by three series of brownish dots or interrupted lines, of which the uppermost two follow the series of tubercles, and the other crosses the front of the shell, near the upper part of the aperture, and is there more apparent than elsewhere: length, 1.9 inches, breadth 1.4 inches.

Divergence of spire, measured at the varices  $80^{\circ}$ .

*Habitat*.—Unknown, probably some portion of the Pacific or Indian Oceans.

REMARKS.—This interesting species of *Ranella*, which seems to have been unknown to, or overlooked by all the writers upon this genus, bears much relation to the *R. bufonia* (Gmel.) Lam., but is clearly distinct. The spire is more obtuse, its tubercles which are more elevated and pointed, are remarkable for their horizontal compression, and for their frequent distortion; its surface is not pitted or punctured as in the *R. bufonia*, while the wrinkles which cross the shell are much less developed and of quite a different character from those of that species. The *R. margaritula* Deshayes, also approaches our species in some respects, but differs decidedly in the character of its tubercles, and in its surface which is throughout finely granulated. It is moreover of a much darker color.



CARDIUM SETOSUM. Plate XI. fig. 1, a. b. c.—*My Cabinet. Cabinets of Dr. J. C. Jay, and C. M. Wheatley.*

*C. testâ cordatâ, rotundato-ovatâ, tumidâ, subequilaterali, albido-lutescente, umbonibus albidis; costis quadraginta planulatis, setigeris; marginibus dentatis: intus candidâ.*

*Shell* cordate, nearly equilateral; a little obliquely rounded ovate, somewhat tumid; anterior\* side shortest, beaks prominent, inflected and nearly in contact; in front of them is a rather narrow ovate depression. On each valve are about 40 flattened radiating ribs, which are twice as wide as the intervening furrows. The edges of these ribs are very minutely denticulate, and in young individuals the denticulations of adjacent ribs approximate so closely as to give the intervening furrow a punctate appearance; upon the central line of each rib, there is a series of small semi-tubular spines or scales, which when perfect terminate in blackish bristles; these are more strongly developed on the posterior margin than elsewhere. The ribs which cross the anterior lunular depression are not bristly, but tubercular. Color yellowish white, becoming pure white towards the beaks; the shell is covered with a thin epidermis of dirty yellow, which becomes thicker and much wrinkled towards the margin, especially upon the posterior end, where its color is nearly black. Interior pure white; grooves answering to the ribs without are faintly visible within, and the edges are strongly notched: length, 2.75 inches, height, 2.75 inches, breadth, 2.1 inches.

*Habitat*, Seas of China.

REMARKS.—This fine shell cannot be referred to any of the species figured and described in Reeve's monograph of this genus, whence I infer it to be new. The number of its ribs, taken in connection with their peculiarly bristly character, will distinguish it from the *C. asiaticum*, *C. multispinosum*, and other muricated species.

\* I use the terms *anterior* and *posterior* in the sense generally adopted by modern authors, being the reverse of that employed by Lamarek.

DESCRIPTION OF NEW SPECIES OF SHELLS, by JOHN C. JAY, M. D.

Read February 1, 1846.

*BULIMUS INFUNDIBULIFORMIS.* Plate X. fig. 7, *a. b.*

*Bul.* testâ conică, tenui, griseâ, longitudinaliter striatâ, umbilico magno, infundibuliformi; spirâ conică, elongatâ; apice acuto; anfractibus septem subplanis; suturâ profundâ; aperturâ ovali, albidâ; labro acuto.

*Shell* conical, thin, gray, longitudinally striated, umbilicus very large, and funnel-shaped; spire conical and elongated; apex acute; whorls seven and somewhat flattened, sutures profound; aperture oval, rather compressed, whitish; lip acute: length, 1-2 inch, breadth, 5-16 inch.

*Habitat.* Interior of Bolivia.

*CONUS CAILLIAUDII.* Plate X. fig. 8, *a. b.*

*Con.* testâ oblongo-turbinatâ, subfusiformi; fuscâ, filis tenuissimis cinctâ; spirâ turrato-exsertâ; apice valdè elato; labro tenui, acuto, arcuato, juxtâ spiram emarginato; aperturâ fauce fuscâ.

*Shell* oblong turbinated, somewhat fusiform, brown, encircled with a number of very fine thread-like lines; spire exserted in the form of a turret, apex very elevated; lip thin, sharp, arched, emarginated next the spire, aperture brown with a white blotch: length, 1 5-8 inch, breadth, 4-8 inch.

*Habitat?*

The remarkable feature of this shell is the spire, which is exactly half its length, the whorls very prominent and nine in number.

I am indebted to Mons. F. Cailliaud of Nantes, for this rare *Cone*, and have taken the liberty to dedicate it to him.

I embrace this opportunity to make several corrections in the last Edition of the Catalogue of my Cabinet.

*Plate 1, fig. 1.* *Bulimus cinctus*, Nobis, is *Bulimus Favannii*, Lam. Delessert, plate 27, fig. 8.

Habitat, St. Augustine Bay, Madagascar.

“ “ *fig. 2, 3.* *Turbo rotelliformis*, nobis, is *Trochiscus Norrisii*, Sowerby Beechey Zool. plate 34, fig. 14.

“ “ *fig. 4.* *Ampullaria Brownii*, nobis, is *A. crassa*, Swains. var.

“ “ *fig. 5.* *Ampullaria Storeria*, nobis, is *A. naticoides*, D'Orbigny.

“ “ *fig. 6, 7.* *Helix Planorbis*, nobis, is *H. monilis*, Brod, Zool. P., 1832.

“ “ *fig. 8, 9.* *Physa scalaris*, nobis, see Haldeman's Monograph, page 34, plate 4, fig. 9.

“ “ *fig. 10, 11.* *Lymnea gracilis*, nobis, see Hald. Mon. page 50, plate 13, fig. 21.

*Plate 6, fig. 1.* *Bulimus ustulatus*, nobis, is a variety of *Bul. chrysalidiformis*, Sowb. Zool. Proc.

*Plate 7, fig. 1.* *Paludina tristis*, nobis, is *P. olivacea*, Sowb.

“ “ *fig. 2, 3.* *Conus rhododendron*, Couthouy, is *Conus Adamsoni*, Gray.

“ “ *fig. 4, 5.* *Cyclostoma cumingii*, Sowb. is *C. gigantea*, Sowb.

*Plate 10, fig. 1, 2.* *Voluta armata*? Lam. var. is *V. Miltoni*, Gray.

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#### ERRATA.

Through an oversight the following errata have occurred :

In pages 142 to 156, for Tab. I., read Tab. VII., for Tab. II., read Tab. VIII., and for Plate III., read Plate IX., wherever occurring.

DESCRIPTION of a NEW SPECIES OF ANSER, *by* GEORGE N. LAWRENCE. *Read March 16th, 1846.*

## ANSER NIGRICANS.

### BLACK-BELLIED GOOSE.

SPECIFIC CHARACTER.—A large white patch on the middle of the neck in front, and extending on the sides; belly brownish black; bill higher than broad at the base.

Bill black, legs and toes black tinged with flesh color, iris dark hazel; head black, tinged with brownish rufous adjoining the bill, with a dirty white line under the eye; neck and fore part of the breast black; a large white patch on the centre of the neck intermixed with black, except at the lower part, where it forms a distinct band of pure white, it is nearly two inches in width, rounding on each side of the neck and almost meeting behind; belly brownish black, sides brownish ash margined with white; back dark brown, each feather margined with a lighter shade; rump-feathers black; axillars and lower wing-coverts greyish black; tail black, consisting of sixteen feathers; upper and lower tail-coverts white; wings black, extending half an inch beyond the tail; second primary one line longer than the first; third half an inch shorter; vent white.

Length 22½ inches; alar extent 44; bill a little higher than broad, measures along the ridge  $1\frac{1}{8}$  inches; from gap 1½; lower mandible 14; tarsus 24; middle toe 2; outer 1½; inner 1½; weight 3 pounds.

I have taken the above description and figure from an adult female procured at Egg Harbor, N. J., in January. Since then two others have been obtained at the same place, one of which I have in my possession. On dissection it proves to be a male. It agrees in markings with the female, but is evidently a younger

bird, being somewhat lighter in the color of its plumage. From this I infer they become darker by age. It is a little larger than the female, the bill being also stouter, measuring  $\frac{3}{8}$  in. high at the base. When on a shooting excursion some years since, at Egg Harbor, I noticed a bird flying at some distance from us, which our gunner said was a Black Brant. This was the first intimation I had of such a bird. Upon further inquiry of him, he informed me he had seen them occasionally, but they were not common. I have learned from Mr. Philip Brasher, who has passed much time at that place, that speaking to the gunners about them, they said they were well known there by the name of Black Brant, and one of them mentioned that he once saw a flock of five or six together.

From these facts it appears to be known to gunners, but has heretofore escaped the notice of ornithologists. With all my inquiries I have not been able to procure any before this winter. I think it a good and well-marked species.

A DESCRIPTIVE CATALOGUE of the GEODEPHAGOUS COLEOPTERA inhabiting the United States east of the Rocky Mountains. By JOHN L. LE CONTE. Read May 25, 1846.

THE great number of works necessary in prosecuting even the most simple inquiry in natural history, is often felt to be a very serious inconvenience. Many, no doubt, are deterred from entering upon the study of certain departments of science by the utter impossibility of ever acquiring even a moderate knowledge of the proposed subject, without the aid of a voluminous and expensive library. This inconvenience is most sensibly felt by the student who turns his attention to the insects of the United States: so scattered, indeed, are the descriptions to be examined, that there is scarcely a scientific society in Europe, whose transactions do not contain some of our native species. It is to be regretted that collectors have fallen into the practice of distributing large numbers of apparently the same species, without first submitting them to close inspection. So nearly allied are many species, in every part of the globe, that even with the most accurate descriptions, it requires much labor to identify them. An example of this may be found in the genus *Brachinus*, of which this synopsis contains a monograph. The characters are quite evident on comparing the species together, but being mostly dependent on minute differences in form, can scarcely be expressed in a description. It has been my custom, in such cases, to lay particular stress on these slight differences, by making the description in some degree comparative. A reference from one species to another is, I am aware, not looked upon with a favorable eye, as it presupposes that the collection of the student is at least tolerably extensive; for the most nearly allied species are frequently inhabitants of very different regions. Still there are cases in which it was considered advisable to make such a reference, in order to avoid an absolute description, which would be so long and tedious as to be nearly useless. Hoping that some more attentive and industrious observer may have better success in seizing on the specific characters of



our Brachini, and in determining which forms are really distinct, and which are varieties, I shall remain content with having pointed out, in an exceedingly imperfect manner, those which appeared to me to be at least as deserving of distinct names, as those described by preceding authors. It is possible that farther observation may tend to diminish this overgrown genus, by showing that the species are subject to certain variations in form, such as is pointed out under the genus *Galerita*. The relation between the latter and *Brachinus* appears not to be sufficiently insisted on by authors; and I imagine that the similarity of appearance produced by form and color will be found connected with a very near agreement of structure. In the cabinet of Dr. Zimmermann, of South Carolina, there is a species of *Galerita* which possessed the power of excreting a highly volatile and acrid fluid in the same manner as a *Brachinus*.

It has been a natural consequence of the exceedingly discursive manner in which our native species have been published, that many, which were described years ago, have lately made their appearance under new names. The following catalogue is intended to remedy in part this difficulty, although, from the limited number of works which have been accessible to the author, it is not, perhaps, as complete as it might have been. Still, however, in the synonymy contained in it, there are points of interest, and to render it eventually a complete synopsis of the Adephaga of our republic, the author would invite the co-operation of other entomologists, who no doubt have it in their power greatly to extend and improve the present attempt. Thus far, all the species mentioned are in the possession of the author, who will gladly avail himself of any opportunity of referring to, or describing any species which has not as yet fallen under his notice.

The writer, feeling that the distinguished liberality manifested towards him by MESSRS. MELSHEIMER, D. ZIEGLER, and S. S. HALDEMAN, calls for something more than a verbal acknowledgement, takes the present opportunity of returning thanks for the promptitude with which they have in every instance sacrificed even unique specimens, which were wanting to complete his cabinet.

# GEODEPHAGA. MacLeay.

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## FAM. 1. CICINDELIDÆ. Leach.

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### MEGACEPHALA. Latreille.

1. *carolina*. Fabr. Syst. Eleuth. Habitat in provinciis australibus.
  2. *virginica*. Fabr. ibid. Habitat cum priore, et ad flumen Arkansas prope montes.
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### CICINDELA. Linné.

1. *unipunctata*. Fabr. Syst. Eleuth; Say Trans. Am. Phil. Soc. N. S., vol. I, pl. xiii.  
     $\alpha$  *immaculata*. Habitat in provinciis australibus, et occidentalibus.
2. *pulchra*. Say Journal Ac. Nat. Sc. of Philad., Vol. III. Tab. XIII. fig. 1.  
     $\alpha$  *macula humerali obsoleta*.  
     $\beta$  *Elytris immaculatis*. Habitat propo fluvii Arkansas scarurigines.
3. *modesta*.  
    A *viridis maculis albis*. *C. rugifrons* Dej. Sp. Gen.  
        *denticulata*. Hentz. Trans. Am. Phil. Soc. N. S., Vol. III, pl. ii.  
     $\alpha$  *Elytris macula superiore obsoleta*.  
     $\beta$  *Elytris concoloribus*. *C. unicolor* Dej. Sp. Gen.  
    B *Niger, maculis albis*. *C. obscura* Say Trans. Am. Phil. Soc. loc. cit.  
        *modesta* Pal. De Beauv. Dej. Sp. Gen.

$\alpha$  et  $\beta$  ut supra. Habitat in locis variis in provinciis orientalibus, mediis et australibus.

4. *scutellaris*. Say Journ. Ac. Nat. Sc. of Philad., Vol. III.  
Tab. XIII, fig. 2.

$\alpha$  macula media marginali lunulaque terminali albis. Habitat ad furcationem fluminis Platte.

5. *sex-guttata*. Fabr. Syst. Eleuth: Say Trans. Am. Phil. Soc. N. S., Vol. I. pl. xiii.

$\alpha$  maculis duabus mediis elytralibus connexis fasciam flexuosam formantibus.

$\beta$  maculis duabus mediis distinctis.

$\gamma$  macula media interiore obsoleta.

$\delta$  immaculata.  $\alpha$ . viridis.

$\delta$ . cærulea. *C. violacea*. Fabr. Syst.

Eleuth. Habitat in provinciis omnibus communis.

6. *splendida*. Hentz. Trans. Am. Phil. Soc. N. S., Vol. III.  
pl. ii.

$\alpha$  maculis albis nullis. Habitat in provinciis australibus.

7. *Audubonii*. Le Conte, Jour. Bost. Soc. Nat. Hist. Vol. V., pl. xviii.

Species hæc a *C. purpureæ* varietate viridi facile dignoscitur, labro brevior, antice quadrato: thorace angustiore, paulo convexiore lateribus magis rotundatis postice minus retractis: margine elytrorum reflexo angustiore, humeris minus rotundatis, fasciaque flexuosa brevior. Mas sæpissime niger, fœmina rarius nigra, et plerumque viridis.

In exemplis nigris, palpi, antennæ, pedes et abdomen nigra sunt.

Habitat ad flumina Platte, et Yellowstone.

8. *purpurea*. Oliv. Ins: Say. Trans. Am. Phil. Soc. loc. cit. sup.

*marginalis*. Fabr. Syst. Eleuth. Habitat ubique.

Hanc speciem margo extimus elytralis, semper cuprascens dignoscit. Elytrorum color a cupreo ad viridem transit: fascia media flexuosa sæpe obsoleta est, semper vestigia tamen manent, semperque obliqua sunt.

9. *limbalis*. Klug. Jahrbücher der Entomologie. Erster Band.

Variat purpurea vel cuprea; macula quoque sæpe fere obsoleta; thorax quam in præcedente paulo convexior; margo elytrorum extimus reflexus, capitis pars postica, thoracisque depressa, semper cæruleo-virides: fascia flexuosa media exterius semper marginem perpendiculariter ferit.

Habitat in Orange Co., Novi Eboraci.

10. \* *amoena*. Tab. XIII. fig. 3. *Cuprea; thorace antice et postice, elytrorumque margine viridi: clytris macula humerali, laterali que ad quadrantem, fascia media subflexuosa, et lunula apicali albis. Exemplum unicum prope provinciæ Missouri terminum occidentalem inventum.*

*Palpi nigri: caput et thorax aureo-cuprea: labrum breve, tridentatum, album; thorax antice quam in præcedentibus duabus minus dilatatus, lateribus minus rotundatus, partibus depressis aureo-viridibus. Scutellum aureo-viride. Elytra magis parallela, cuprea; sutura et margine viridibus; vitta ejusdem coloris marginem adjungit, sicut in præcedentibus; macula parva humerali, secunda marginali inter humerum et fasciam mediam perpendiculariter orientem, minus quam in C. limbalis flexuosam; lunulaque terminali margine viridi divisa, albis. Subtus viridis, pilis sparsis albis: pedes viridi-aurei.*

11. \* *spretæ*. *Obscure nigro-ænea subviridescens, thorace lateribus vix rotundato, postice leviter retracto; clytris minus convexis subparallelis, viridi-marginatis, gutta ad quadrantem, fascia media angulato-flexuosa, lunulaque terminali interrupta ochroleucis, subtus viridi-ænea. Habitat ad Eastport, in provincia Maine; musco Dom. Harris. Tab. XIII. fig. 7.*

*Obscure nigro-ænea, subviridescens, subtus viridi-ænea. Antennæ et palpi nigri. Mandibulae nigre macula basali albida. Labrum omnino sicut in C. purpurea. Caput ad latera rugose*

striatum, medio et postice subtiliter granulatum, antice obsolete transverse rugosum. *Thorax* latitudine summa non brevior, antice et postice truncatus, lateribus vix rotundatus, postice leviter retractus, basi coleopteris vix duplo angustior, antice et postice profunde transverse impressus, linea longitudinali tenui, disco modice convexus, subtiliter granulatus. *Elytra* thorace fere sesqui latiora subparallela humeris leviter obtusis, minus rotundatis; minus convexa; margine lato, cæruleo-viridi obscuro, margineque tenuissimo reflexo, obscure viridi-aureo; gutta parva rotundata submarginali ad quadrantem; fascia media perpendiculariter oriente, dein obtuse angulata, incurvataque; lunulaque apicali margine viridi divisa, guttam rotundatam maculamque terminalem formante, ochroleucis.

Obs.—Præcedentibus quatuor similis. A C. Audubonii, thorace minus convexo, labro longiore, fasciaque elytrali perpendiculariter oriente distincta. A C. purpurea et limbali, thorace angustiore, postice multo minus retracto dignoscitur.

12. *patrula*. Dej. Sp. Gen. Gould. Bost. Jour. Nat. Hist. Vol. I., pl. iii.

α Olivacea, maculis solitis.

β Obscure nigra, maculis solitis. *C. consentanea*.  
Dej. Sp. Gen. Habitat apud montes provinciarum  
orientalium, et mediarum.

13. *longilabris*. Say. Long's Exped. to the Sources of the St. Peter's River, Vol. II.

*albilabris*. Kirby-Richardson. Fauna Bor. Americana., Vol. IV, pl. I. Variat obscure ænea; maculis sæpe obsoletis. Habitat Mackinaw insulam, et ad Lacum Superiorem.

14. *obsoleta*. Say. Journ. Ac. Nat. Sc. of Philad. Vol. III.

Tab. XIII, fig. 4.

α Gutta alba elytrali obsoleta.

β Sericeo-viridis; immaculata. Habitat prope flumen Arkansas, ad montes: β. 1 millia passuum infra Bent's Fort inventa.

15. **vulgaris**. Say. Trans. Am. Phil. Soc. N. S. Vol. I. pl. xiii.

**obliquata**. Dej. Sp. Gen.

$\alpha$  Maculis obsoletis. Habitat ad flumen Ohio.

$\beta$  Viridis, maculis solitis. Habitat in territorio Oregonensi.

Species hæc ubique communius invenitur. Ill. Dom. Kirby (Richardson Fauna Bor. Am.) *C. obliquatam* (Dej.) et *C. vulgarem* (Sayi) pro diversis habet: sed characteres datæ obscuræ, et variabiles videntur.

16. **fulgida**. Say. Journ. Ac. Nat. Soc. of Philad., Vol. III.

Tab. XIII, fig. 5.

Habitat prope Platte, supra faucationem.

17. \* **venusta**. Tab. XIII, fig. 6. *Rubro-cuprea, thorace fulgido; elytris margine, lunula humerali obliqua, fascia refracta media, lunulaque terminali late albis*. Habitat apud flumen Platte.

Supra rubro-cuprea, thorace fulgidior, impressionibus viridicantibus, subtus viridi-cyanea, hirsuta. *Palpi* virides. *Mandibula* nigræ, macula magna basali alba. *Labrum* magnum porrectum, antice exterius sinuatum, album, dentibus tribus minutis medianis. *Caput* viridi et cupreo-micans: *thorax* lateribus paulo rotundatus, impressionibus transversis profundis, linea longitudinali tenui. *Elytra* subparallela, margine laterali, lunula humerali obliqua, exadversum fasciam mediam refractam latam desinente; fascia ad extremitatem dilatata est, et exadversum lunulam apicalem desinit; omnibus late albis. *Epipleura* virides; elytrorum apex serrata.

Species hæc a *C. formosa* (Sayi) valde referente, facile dignoscitur; labro majore; thorace paulo angustiore; lunula humerali longiore obliqua, fasciaque media subito refracta, angulum fere rectum formante; elytris quoque apice serratis.

18. **generosa**. Dej. Sp. Gen.; Gould. Bost. Journ. Nat. Hist. Vol. II. pl. iii.

Fascia media in hac specie, refracta, sed quam in præcedente brevior; lunula humeralis brevis est; et elytra apice



simplicia : colore obscuro semper gaudet. Habitat in locis diversis provinciarum mediarum : exempla pauca prope fluminis Mississippi scaturigines inveni.

19. *formosa*. Say. Am. Entomology. Vol. I. pl. 18 et loc. cit. sup.

Variat rubro-cuprea vel purpurea ; lunula humeralis valde abbreviata, et non obliqua ; fascia media flexuosa, non refracta : errore Ill. Com. Dejean olytra apice serrata dicit. Habitat prope flumina Platte, et Arkansas.

20. *repanda*. Dej. Sp. Gen.

*hirticollis*. Say. Journ. Ac. Nat. Soc. of Philad. Vol. I : Gould, loc. cit. sup. Species hæcco ubique redundat.

21. *hirticollis*. Say. Trans. Am. Phil. Soc. N. S. Vol. I. pl. 13.

*albohirta*. Dej. Sp. Gen : Gould Bost. Journ. Nat. Hist. Vol. II. pl. iii.

In locis maritimis arenosis omnibus ; prope lacus Ontario et Superiorem habitat ; ad flumina Platte et Arkansas prope montes rarius invenitur. Ad infinitum variat, maculis tum obsoletis, tum conspicuis.

22. *variegata*. Dej. Sp. Gen.

*marginata?* Fabr. Syst. Eleuth.

*marginata*. Say. Trans. Am. Phil. Soc. N. S. Vol. I. pl. xiii.

Habitat in locis diversis ad maris oras.

23. *blanda*. Dej. Sp. Gen.

α Dejeanio descripta : elytris fusco-olivaceis, maculis solitis angustis. Habitat ad flumina Connecticut, Roanoke, et St. Croix, in territorio Wisconsin.

β Elytris cupreo-fulgidis, maculis latioribus. Flumen Arkansas prope montes.

γ Fusca : maculis latissimis ita ut elytra alba videntur, lineis paucis fuscis notata. Ad fluvium Canootchee,

Georgiæ. Elytra in fœminis apice profunde sinuata, fere dentata.

24. *dorsalis*. Say. Trans. Am. Phil. Soc. N. S. Vol. I. pl. xiii.

*signata*. Dej. Sp. Gen.

α Elytra immaculata.

Habitat ad maris oras: nomen *C. dorsalis*. ab Ill. DD.

Klug et Dejean speciei alteræ impositum, præoccupatum et ideo mutandum est.

25. *lepida*. Dej. Sp. Gen.

Tab. XIII. fig. 8.

Habitat prope urbem Trenton Novæ Cæsareæ; et ad maris oras insulæ Longæ Noveboraci. Elytra fœminarum profunde sinuata.

26. \* *nigrocoerulea*. Tab. XIV, fig. 9. *Nigro-subpurpurea*:

*thorace crassiusculo, subrotundato; elytris linea impressionum cœrulearum juxta suturam.* Habitat ad flumen Arkansas.

Nigra, obscura; subpurpureo-micans. *Labrum* album, breve, antice quadratum, medio paulo porrectum, dentibus tribus minutis indistinctis: *mandibulæ* nigræ macula basali alba: *palpi* nigro-viridescentes. *Caput* minute granulatum, rugis paucis prope oculos minus protrusos. *Thorax* latitudine caput æquans; convexior, lateribus rotundatis, lævis, rugulis paucis indistinctis versus medium: impressionibus transversis bene notatis, linea longitudinali angusta. *Elytra* sericco-micantia, punctata: partibus prope scutellum elevatis, lævibus, thorace quadrante latiora; elongatiora, postice, regulariter rotundata; impressionibus nonnullis parum profundis; lineaque punctorum variolosorum cœruleorum prope suturam sicut in *C. punctulata*.

27. *duodecim-guttata*. Dej. Sp. Gen.

*proteus*. Kirby Richardson's Faun. Bor. Am. Vol. IV. pl. 1.

In provinciis Atlanticis, ad Mississippi scaturigines, et prope Rocky Mts. habitat.

28. *trifasciata*. Fabr. Syst. Eleuth.

*tortuosa*. Dej. Sp. Gen.

Tab. XIV, fig. 10.

Habitat in provinciis australibus in orizaceis.

29. *punctulata*. Fabr. Syst. Eleuth: Say. Trans. Am. Phil. Soc. N. S. Vol. I. pl. xiii.

 $\alpha$  nigra, maculis plus minusve conspicuis. Habitat ubique. $\beta$  major, sericco-viridis. *C. micans*. Fabr. Syst. Eleuth.

Habitat prope Rocky Mts.

30. *Hentzii*. Dej. Sp. Gen.

*haemorrhoidalis*. Hentz. Trans. Am. Phil. Soc. N. S.

Vol. III. pl. ii: Gould, Bost. Journ. Nat. Hist. Vol.

II. pl. iii.

Habitat prope Boston, provinciæ Massachusetts. Nomen hæmorrhoidalis ante annum 1825, Wiedemannio speciei alteræ datum: Dejeanianum ideo retinendum est.

31. *marginipennis*. Dej. Sp. Gen.

Tab. XIV, fig. 11.

Species hæc pulchra prope urbem Harrisburg, Pennsylvania, mensibus Julio et Augusto, ad fluminis ripas inventa.

32. \**cinctipennis*. Tab. XIV, fig. 12. *Nigra, vel obscure olivacea: thorace latiore; elytris margine lato, postice subdilatato, ramo humerali, fasciaque media infra tendente tenuibus, albis, subtus nigra, vel viridis.*

Habitat apud Rocky Mountains.

Sub-cylindrica, nigra, vel obscure olivacea, subtus viridis. *Labrum* album, longitudine plus duplo latior, dentibus tribus parvis antice instructum; angulis anticis rectis: *palpi* pallidi, articulo ultimo nigro: antennæ æratæ. *Thorax* latiusculus, lateribus rotundatus; impressionibus transversis distinctis, partibus vicinis depressis: subtiliter granulatus: lateribus albo-pilosis. *Elytra* apice spina minutissima instructa punctis parvis variolosis adspersa (in varietate olivacea cœruleo-micantibus): parallela, subelongata, thorace paulo latiora; margine toto lato postice subdilatato albo, ramo obliquo descendente, alteroque medio, qui

subito inflexus oblique deorsum tendit, et ad dodrantem desinit, tenuibus. *Pedes* virides, *epipleuræ* brunneæ margine extimo viridi, postice abbreviato. In varietate nigra, ubi color viridis est, niger evadit: in aliis margo albus subinterruptus est.

33. *pusilla*. Say. Trans. Am. Phil. Soc. N. S. Vol. I, pl. xiii.

$\alpha$  macula humeralis cessat.

$\beta$  macula media deest.

$\gamma$  immaculata. Habitat ad flumen Platte, supra furcationem.

34. *abdominalis*. Fabr. Syst. Eleuth.

Tab. XIV, fig. 13.

Habitat in pinetis, locis arenosis nigris.

35. *\*celeripes*. Tab. XIV, fig. 14. *Nigro-subneca, sub-aptera*: capite magno, oculis valde exstantibus; thorace angusto, cylindrico; *elytris* subpilosis, margine postico interrupto, guttisque duabus parvis albis: sutura acuminata. Habitat ad fluminis Kansas Republican Fork.

*Nigro-aenea* obscura, alis rudimentalibus: *antennæ* elongatæ: *palpi* pallidi, articulo ultimo viridi-aureo, *labrum* album magnum, convexum, utrinque antice oblique decisum dein perpendicularare: dentibus tribus minutissimis: *caput* magnum, medio levissime granulatum ad latera rugose striatum, oculis valde exstantibus. *Thorax* subcylindricus, elongatus, antice paulo latior, impressionibus transversis distinctis, linea longitudinali nulla; rugosus, ad latera subpilosus, maculis duabus oblongis, granulosis, obscurioribus. *Elytra* basi angusta, ad dodrantem ampliata, dein rotundata, (sutura valde producta, acuminata); crebre punctata, pilis albis sparsis; subaenea, obscuro-variegata, gutta parva ad quadrantem, altera paulo pone medium, prope suturam, margineque postico, ad dodrantem interrupto, albis. Subtus viridia pectus dense albopilosum, pedes elongati, cuprascentes.

## SPECIES SEQUENTES IN MUSEO NOSTRO DESUNT.

{ *Amblycheila*, Say. *cylindriformis*. Say. Journ. Ac.  
 { *Omus*, Esch. Nat. Sc. Vol. III. Habitat ad Rocky  
 Mountains basin.

*Cicindela decemnotata*. Say. Trans. Am. Phil. Soc.  
 N. S. Vol. I; Am. Ent. Vol. I, pl.  
 18, icon nequam. Habitat ad ripas  
 fluminis Missouri.

*limbata*. Say. Journ. Ac. Nat. Sc, Vol. III.  
 Habitat ad flumen Platte.

*Saulcyi*. Guer. Revue Zool. Oct. 1840. Hab-  
 itat Floridam.

*venusta*. Ferté ibid. 1841, p. 37.

*gratiosa*. Guer. ibid. Habitat cum priore.

*terricola*. Say. Long's Exped. to the Sources  
 of the St. Peter's River, Vol. II.  
 Habitat in territorio Caurino.

*rufiventris*. Dej. Sp. Gen. Habitat ad  
 montes in provinciis australibus.

*circumpicta*. Ferté Rev. Zool. 1841. Ha-  
 bitat in Texas.

*togata*. Ferté ibid. Habitat in Texas.

*severa*. Ferté ibid. Habitat in Texas.

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FAM. II. CARABIDÆ. Leach.

Sub. Fam I.—*Brachinides*.—Westwood.

*Brachinidæ*.—McLeay.

*Truncatipennes*.—Lat.

CASNONIA. Latreille.

1. *pennsylvanica*. Linné, (Attelabus). Habitat ubique.

LEPTOTRACHELUS. Lat.

SPHERACRA. Say.

1. *dorsalis*. Fabr. Syst. Eleuth. Habitat in Georgia, et Mis-  
souri rarius, et NovEboraco rarissime.

GALERITA. Fabr.

1. *janus*. Fabr. Syst. Eleuth.

*cyanipennis*. Dej. Sp. Gen.

*α bicolor*. Drury.=*americana*. Dej. Sp. Gen.

*β cordicollis*. Chaudoir. Bull. de la Soc. Imp. des  
Nat. Moscou.

*γ longicollis*. ibid.

*δ dubia*. LeConte. Proceed. Ac. Nat. Sc. of Phil. Vol.  
I. Habitat ubique. *α* et *γ* in prov. mediis, reliqui  
in australibus.

2. *Lecontei*. Dej. Sp. Gen. Habitat in prov. australibus.

Num hæc insecta, quæ pro varietatibus habeo, revera species distinctæ sint, dubitandum est. E thoracis forma, et striarum elytraliumpunctatione characteres deducuntur: G. LeContei tamen in thoracis forma æque variat. Ex examinatione assidua speciminum fere centum, in turmas duas distribuuntur: turma prima pro typo G. Janum habet, formas novem complectit; thoracis forma, extremitate hæc G. longicollis (Chaudoir) illa vera G. cordicollis (ejusdem) disposita: elytrorum tamen punctatione, G. bicolor (Drury,) et G. dubia (LeC.) situs congruentes occupant. Quicquid in rebus hisce dubium, collectione aucta determinare spero.

Turma secunda pro typo G. Lecontei habens formas quatuor distinctas a thorace deductas includit. Character distinctus qui ab omnibus aliis hanc speciem segregat, e pilorum in elytra positione oritur: cum insectum in positione quadam tenetur, spa-



tium triangulare obscurum in disci medio apparet, dum pars reliqua lucem reflectit.

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DIAPHORUS. Dej.

1. *Lecontei*. Dej. Sp. Gen. Habitat in prov. australibus rarissime.

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CYMINDIS. Lat.

*TARUS*. Clair.

§ 1. Tarsorum anticorum articulus penultimus bifidus.

1. *laticollis*. Say. Trans. Am. Phil. Soc. Vol. IV.

Habitat ad Rocky Mountains.

2. *cribricollis*. Dej. Sp. Gen.

*marginatus*. Kirby-Richardson. Fauna Boreali Am.

α *Brunnea*, macula humerali brunneo-testacea. Habitat cum priore.

3. *venator*. Dej. Habitat NovEboraci, rarius.

4. *americana*. Dej. Habitat NovEboraci.

5. *pilosa*. Say. Trans. Am. Phil. Soc. N. S. Vol. II.

*pubescens*. Dej. Sp. Gen. Habitat ubique.

α violaceo micante.

β testacea.

6. \**elegans*. *Brunneo-picea*, *clytrorum* *marginæ*, *antennis* *pedibusque pallidioribus*: *thorace* *sparse punctato*, *cordato*, *convexo*: *clytris striatopunctatis*, *interstitiis serie punctorum*. Long. .41 unc lat. .15 unc. Habitat in provinciis australibus.

*Brunneo-picea*, *nitida*: *antennæ* et *palpi* *brunnei*: *caput* inter oculos *sparse punctatum*. *Thorax* *latitudine longitudinem æquante*, *convexus*, *subcordatus*, *antice* *profunde emarginatus*, *angulis anticis valde rotundatis*; *lateribus rotundatis*, *basi retractis*, *angulis posticis obtusis*, *elevatis*, *dente parvo obtuso brevissimo instructis*; *basi incurvo*: *marginæ tenui reflexo*, *prope*

angulos posticos paulo latiore; impressionibus transversis satis distinctis, linea longitudinali tenui: sparse punctatus, grossius ad latera. *Elytra* brunneo-marginata, margine ad humerum indistincte dilatato; convexiuscula, basi angustiuscula, humeris valde rotundatis, minime exstantibus, usque ad dimidium leviter ampliata, apice rotundata, levissime sinuata, vix truncata; striata, striis punctatis; interstitiis planis, serie punctorum notatis. *Subtus et pedes* brunnei. Thoracis forma priorem refert.

7. *neglecta*. *Punctata, obscure ferruginea, pubescens, capite thoraceque nigro-piceis, elytris grosse crenato-striatis, pedibus ferrugineis*. Long. .3 unc. lat. .11 unc. Habitat in Pennsylvania, a Dom. Ziegler benevole data.

*C. neglecta*. Hald. Proc. Ac. Nat. Sc. Vol. I.

*C. unicolor?* Kirby-Richardson F. Bor. Am. Vol.

IV.

Habitus *C. pilosæ*, at duplo minor, obscure ferruginea, sparse pubescens. *Caput* majusculum nigro-piceum, oris, antennis, palpisque ferrugineis; antice fere leve, postico sparse punctatum; oculis parvis valde exstantibus. *Thorax* nigro-piceus, capite non longior, et vix latior, leviter cordatus, antice fere truncatus, basi leviter rotundato, utrinque valde obliquo, lateribus prope basin recurvis, margine angusto reflexo, angulis posticis valde obtusis, apice non rotundatis; disco modice convexus, sparse grosse punctatus; linea longitudinali profundissima, utrinque paulo abbreviata, impressionibus transversis indistinctis. *Elytra* thorace paulo latiora, latitudine duplo longiora, fere parallela, apice rotundato-truncata; anguste striata, striis externe grosse crenato-punctatis, postice levioribus, interstitiis punctis minutis subseriatim positissimis; pedes ferruginei.

§ 2. Articulus penultimus tarsorum omnium bifidus.

8. *lucidula*. Dej. Sp. Gen. Habitat in Georgia, Pennsylvania, et Novæboraco rarissime; macula humerali obscure testacea in specimina duo mihi visa, sed in descriptione Dejeaniana non apparet.

9. \**amoena*. *Cæruleo-viridis, nitens; thorace basi punctato; elytris profunde striato-punctatis*. Long. .375 lat. .185. Habitat ad Long's Peak, Rocky Mountains.

Cæruleo-viridis, metallico-nitens; *antennæ* nigrae, articulis tribus primis subtus macula parva ferruginea: *caput* ad latera leviter rugosum et punctatum, impressionibus frontalibus obliquis brevibus latis. *Thorax* latitudine longitudinem excedente, convexus, subcordatus, lateribus rotundatus, basi retractus, margine tenui reflexo postice latiore, angulis posticis leviter elevatis, obtusis; basi ad latera oblique truncato; impressionibus transversis, et linea longitudinali profundis; rugulis transversis, disco obsoletis, obtectus; antice punctis paucis; basi punctatus. *Elytra* subconvexa, subparallela, humeris rotundatis, apice recte truncata; striata, striis profundis, punctatis, interstitiis convexis punctis parvis sparsis. *Pedes* nigri.

10. \**viridicollis*. *Cæruleo-viridis; capite et thorace viridicaneis, hoc basi punctato; elytris levissime striatis, obsolete punctatis*. Long. .305 unc. lat. .13 unc. Habitat cum priore.

Priorem refert. Cæruleo-viridis; *caput* viridi-aureum, ad latera rugosum et punctatum, impressionibus frontalibus longioribus acutioribus; *antennæ* nigrae, articulis tribus primis ferrugineis apice nigris. *Thorax* fere ut in priore, minus tamen convexus, angulis posticis magis exstantibus; rugulis obtectus, ad latera valde rugosus. *Elytra* antice angustiuscula, humeris valde rotundatis, usque ad medium leviter ampliata, apice recte truncata; tenuissime striata, striis levissime punctatis; interstitiis planis, punctis paucis obsoletis, ad latera distinctioribus. *Pedes* nigri. C. viridi (Dej.) affinis.

11. *purpurea*. Say. Trans. Am. Phil. Soc. Præcedentes duas valde refert, sed purpurea, et valde depressior: *thorax* ad basin minus retractus, angulis valde obtusis, impressione basali profundiore, viridi-micante,

*Elytra* minus punctata sub-parallelâ, striato-punctata, interstitiis omnino planis, obsoletissimo punctatis : *antennæ* nigrae, articulis tribus primis ferrugineis : *pedes* nigro-cærulei. Habitat cum priore.

12. *sinuata*. Say. Trans. Am. Phil. Soc.

*pustulata*. Dej. Sp. Gen. Habitat in provinciis mediis.

13. *limbata*. Dej. Sp. Gen. Habitat in provinciis australibus.

α *macula humerali* cessante.

14. *fuscata*. Dej. Sp. Gen. Priorem refert ; thorace tamen longiore basi angustiore, lateribus minus late depresso, angulis posticis minus obtusis, linea longitudinali leviori, antice abbreviata. Habitat in provinciis australibus.

15. *platicollis*. Say. Trans. Am. Phil. Soc. (Lebia.)

*complanata*. Dej. Sp. Gen. Habitat ubique.

α Thorace ferrugineo fusco.

§ 3. Tarsis omnibus filiformibus.

16. *piccus*. Dej. Sp. Gen. (Dromius). Habitat in provinciis borealibus, et ad lacum Superiorem. Palporum articulus ultimus maribus incrassatus, et securiformis cum Cymindi convenit. Habitu omnino Dromio dissimilis.

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CALLEIDA. Dej.

1. *viridipennis*. Say. Trans. Am. Phil. Soc. (Cymindis.)

*marginata*. Dej. Sp. Gen.

*prasina*. Mels. Cat. Habitat in provinciis australibus.

2. *fulgida*. Dej. Habitat in prov. australibus.

3. *decora*. Fabr. Syst. Eleuth. Habitat etiam in provinciis australibus.

4. \* *punctata*. *Elongata, viridis; capite nigro, thorace, pectoribus, et pedibus rufis, genubus nigris; clytris*

*profunde striato-punctatis, interstitiis sub-convexis.*  
Long. .28 lat. .09. Habitat ad flumen Kansas.

*C. decoram* valde refert. Minor, angustior, oculis vix prominentibus; *antennæ* basi ferrugineæ. *Thorax* angustior, multo convexior, lateribus tenuissime marginatus; impressione transversa anteriore minus profunda, sed multo magis punctata. *Elytra* convexiora, basi angustiora, usque ad dodrantem leviter sinuato-ampliata, profunde striato-punctata, interstitiis satis convexis, punctis parvis sparsis, tertio punctis quatuor majoribus. *Subtus* sicut in *C. decoram*.

5. *smaragdina*. Dej. Sp. Gen. Habitat in provinciis australibus.

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AXINOPALPUS. gen. nov.

CORPUS depressum, subelongatum.

THORAX latus, subdepressus, postico leviter retractus.

PALPI maxillares elongatiusculi, tenues, articulo penultimo obconico; ultimo dimidio longiore, versus apicem descescente, apice paulo depresso, fere acuto. labiales inflati, crassi, articulo ultimo magno, obconico, subsecuriformi.

ANTENNÆ articulo tertio quarto æquante; compressæ, articulis arcte connexis; versus apicem levissime incrassatæ. Ceteris genus hocce *Dromium* refert.

1. *biplagiatus*. Dej. Sp. Gen. (*Dromius*.) Habitat in provinciis mediis, et ad Rocky Mountains.

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DROMIUS. Bonelli.

1. *subsulcatus*. Dej. Sp. Gen. Habitat NovEboraci.

2. \**cordicollis*. *Nigro-subæneus, thorace valde cordato, elytris subsulcatis, interstitio tertio punctis duobus.*  
Long. .17, lat. .065. Habitat NovEboraci; a Dom. Jac. Thomson benevole datus.

*D. subsulcatum* valde refert: paulo major; *caput* idem.

*Thorax* antice latior, paulo minus convexus, postice multo magis retractus, cordiformis : linea longitudinali profundiore, integra : impressione transversa anteriore profunda, angulata ; posteriore sicut in *D. subsulcato* satis distincta. *Elytra* profunde striato-sulcata, striis quam in *D. subsulcato* paulo latioribus ; interstitiis angustis, valde convexis, tertio punctis duobus.

3. \* *latens*. *Niger* : *elytris subæneis, obsolete sulcatis*. Long.

·125, lat. ·055. Habitat ad Mississippi scaturigines.

*D. subsulcatum* refert. Sed *caput* et *thorax* omnino niger ; *elytra* subænea, rubro-irrorata. Impressionibus frontalibus brevioribus, profundioribus : *thorax* latior, multo minus convexus, postice minus retractus : impressionibus transversis distinctis, linea longitudinali medio profunda, utrinque paulo abbreviata. *Elytra* minus profunde striata, striis fere indistinctis.

4. *americanus*. Dej. Sp. Gen. Habitat Novæboraci, et ad Lacum Superiorem.

5. \* *angustus*. *Niger, nitidus, elongatus, thorace lato, subquadrato, postice angustiore, elytris parallelis, obolestissime striatis ; abdomine longiore*. Long. ·135, lat. ·045. Habitat ad Rocky Mountains.

*D. americanum* refert, sed multo longior et angustior. *Niger nitidus, elongatus* : *caput* impressionibus obsoletis. *Thorax* subquadratus, postice angustior, lateribus antice valde rotundatis, quam in *D. americano* paulo convexior et lævior : impressionibus transversis vix distinctis, linea longitudinali levissime impressa, utrinque abbreviata : angulis posticis obtusioribus, foveaque basali quam in *D. americano* profundiore. *Elytra* parallela, levissime striata, striis antice omnino oblitteratis : *abdomen* quam in speciebus alteris longius.

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PLOCHIONUS. Dej.

1. *timidus*. Haldeman. Proceed. Ac. Nat. Sc. of Phila.

Vol. I. Habitat in provinciis australibus.



2. *amandus*. Newman. Ent. Mag. Vol. V.

var. *vitatus*. LeConte. Proceed. Ac. Nat. Sc. Habitat in Florida.

3. *Bonfilsii*. Dej. Sp. Gen. Hope Col. Man. Vol. II. pl. 1.

Habitat in Pennsylvania rarissime, a Dom. Ziegler datus. A. Ploch. timido differt thorace brevior, antice minus angustato sed magis rotundato, elytris angustioribus, fere parallelis, postice vix dilatatis, paulo minus truncatis, colore necnon pallide ferrugineo, (nam *P. timidus* nigro-piceus est).

## LEBIA. Latreille.

§ 1. Thorace latitudine brevior, postice non retractus vel vix retractus, margine lato depresso.

1. *\*concinna*. *Rufa, punctata; elytris cyaneis, antice late rufo marginatis; abdomine nigro; tibiis, antennisque fuscis*. Long. .31, lat. .155. Habitat ad Lacum Superiorem.

*Rufa; caput* obscurius, dense punctatum; antennæ et palpi brunnei. *Thorax* punctatus antice vix emarginatus, angulis antice obtusis, lateribus rotundatis, depressis, angulis posticis rectis, impressione transversa anteriore acute angulata, posteriore recta, linea longitudinali inconspicua. *Scutellum* utrinque impressum. *Elytra* cyanea, nitidissima, macula magna basali rufa, quadrantem occupante, quæ ad suturam colore cyaneo extenso propemodum in duas dividitur partes leviter striato-punctata; interstitiis sparse punctatis, tertio punctis tribus majoribus. *Subtus* punctata, *abdomen* nigrum, *tibiæ tarsique* brunnei.

2. *grandis*. Hentz. Trans. Am. Phil. Soc. Habitat in provinciis australibus.3. *tricolor*. Say. Am. Phil. Soc. Habitat NovEboraci rarius, et ad Lacum Superiorem.

4. *\*pleuritica*. *Rufa*; *elytris cyaneis, vel viridi-cyaneis, striatis*; *epipleuris rufis, abdomine nigro*. Long. .28, lat. .12. Habitat ad Lacum Superiorem.

*Rufa*; *caput* triangulare, leviter rugosum, pone oculos valde constrictum, impressionibus frontalibus distinctis, antice fovea parva notatis; foveaque altera ad oculi marginem; *antennæ* articulis tribus primis nitidis, reliquis paulo obscurioribus. *Thorax* rugosus, antice vix emarginatus, lateribus valde rotundatis, late depressis, angulis posticis obtusis: impressione transversa anteriore obtuse angulata; posteriore profundiuscula subrecta; linea longitudinali capillari. *Scutellum* parvum rufum. *Elytra* cyanea, vel viridi-cyanea, distincte striata, stria tertia punctis duobus impressis; margine externo tenuissimo, epipleurisque rufo testaceis. *Abdomen* nigrum, indistincte rugulosum.

Striæ elytrales quam in *L. atriventri* profundiores sunt, sed non sicut in *L. tricolori* excavatæ.

5. *atriventris*. Say. Trans. Am. Phil. Soc. Habitat in provinciis mediis et occidentalibus.

6. *viridipennis*. Dej. Sp. Gen.

*borea*. Hentz. Trans. Am. Phil. Soc. Habitat cum priore.

7. *\*furcata*. *Rufa*; *elytris trivittatis, vitta media, suturali, communi, antice furcata: pedibus nigris, femoribus subtus flavescens*. Long. .30, lat. .125. Habitat ad flumen Platte, et ad Lacum Superiorem.

*Rufa*; *caput* antice rugulis indistinctis notatum; foveaque parva prope antennarum originem; *palpi* et *oculi* nigri; *antennæ* articulo primo rufo; secundo et tertio rufis nigro-terminatis; reliquis nigro-fuscis. *Thorax* brevis, antice leviter emarginatus, lateribus valde rotundatis, margine lato laterali et postico plano, flavescens, angulis posticis subrectis, disco toto rugoso; impressionibus transversis satis distinctis, angulos in medium formantibus, linea longitudinali profundiuscula. *Elytra* vittis tribus nigris, postice paulo abbreviatis; suturali antice furcata; spatii

inter vittas exteriores et suturalem flavescens; leviter striata, interstitio tertio punctis tribus impressis. *Pedes* nigri, femoribus subtus, tibiisque extus flavescens.

8. *pulchella*. Dej. Sp. Gen. Habitat in prov. australibus.

9. *fuscata*. Dej. ibid. Habitat NovEboraci, et in provinciis australibus.

α Dimidio minor, vitta marginali cum macula suturali paulo pone medium conjuncta. Habitat ad Lacum Superiorem.

10. *axillaris*. Dej. ibid. Habitat in provinciis australibus et ad Rocky Mountains. Abdomine nonnunquam pallido, sed sæpius infuscato.

*apicalis*. Hald. Proc. Ac. Nat. Sc. Vol. 1. (Dromius.)

var. *brunnea*. Hald. ibid.

11. *ornata*. Say. Trans. Am. Phil Soc.

*analis*. Dej. Sp. Gen. Habitat NovEboraci rarius.

12. *scapularis*. Dej. Sp. Gen. Habitat NovEboraci, et ad Rocky Mountains.

α Vitta elytrali postice marginem attingente.

13. \* *conjungens*. *Rufa; capite inter oculos tenuiter striato, elytris vitta lata suturali, alteraque submarginali, postice connexis, tibiis tarsisque nigris*. Long. 2 unc. lat. 1. Habitat NovEboraci rarissime.

*Rufa*: *palpi* nigri, *antennæ* fusæ basi rufæ. *Caput* triangulare, postice profunde constrictum, oculis rotundatis valde exstantibus, inter oculos tenuiter striatum et punctatum. *Thorax* fere semicircularis, apice paulo truncatus, margine lato depresso, transverse subtiliter rugosus, subnitidus, linea longitudinali profunda. *Elytra* thorace sesqui latiora subquadrata, plana, apice sinuato-truncata, profunde tenuiter striata, vitta lata communi suturali ad striam 3iam extendente, alteraque a 5ta ad 8vam pos-

tice leviter dilatata, et cum suturali conjuncta, nigris. *Pedes* nigri, femoribus basi, tibiis medio pallidis.

L. vittatam et scapularem valde refert; huic autem pedes ferruginei, illæ caput striatum.

14. *vittata*. Fabr. Habitat ubique.

15. *nigripennis*. Dej. Sp. Gen. Habitat in provinciis australibus.

16. *collaris*. Dej. ibid. Habitat cum priore, et NovEboraci.

17. *affinis*. Dej. ibid. Habitat in provinciis australibus.

18. \**maculicornis*. *Obscure ænea, antennarum articulo tertio pedibusque pallidis*. Long. .16, lat. .075. Habitat in Georgia.

*Obscure ænea; antennæ nigrae, articulo tertio, quartoque basi pallido. Thorax subquadratus, antice vix angustatus, subconvexus, tenuissime marginatus, lateribus non depressis; linea longitudinali tenui; impressione transversa anteriore vix distincta, posteriore profunda, angulis posticis reflexis, subelevatis, rectis: clytra obscure viridicentia, tenuiter striata, interstitio tertio punctis duobus: pedes pallidi.*

19. *smaragdula*. Dej. Sp. Gen. Habitat ubique.

20. *viridis*. Say et Dej. Habitat ubique.

21. *pumila*. Dej. Sp. Gen.

*floricola*. Harris, N. E. Farmer. Habitat in provinciis mediis.

§ 21. Thorax convexus, cordatus, postice retractus, margine depresso nullo.

22. *4-vittata*. Dej. Sp. Gen. Habitat in Alabama, a Dom. Haldeman amice data.

23. *abdominalis*. Chaudoir Bul. de Soc. Imp. des Nat. Moscou. *Rufa, antennis obscuris basi testaceis, capite clytrisque viridi-æncis, pectore, genubus tibiisque ad apicem nigris*. Long. .2 unc, lat. .08. Habitat in Alabama, a D. Haldeman amice data.

Rufa. *Antennæ* obscuræ, articulis duobus primis testaceis palpi picci, mandibulæ ferruginæ. *Caput* convexum pone oculos profunde constrictum, collo brevi in thorace immissum, sparse subtiliter punctatum ad oculos leviter rugosum, viridi-æneum nitidum. *Oculi* parvi modice exstantes. *Thorax* capite vix latior, latitudine summa paulo brevior, subcordatus, lateribus valde rotundatus, postice retractus, ad angulos posticos leviter sinuatus, antice posticeque truncatus, disco convexo, leviter spar-seque punctatus et rugosus; impressione transversa anteriore vix distincta, posteriore valde profunda recta, linea longitudinali tenui. *Scutellum* brunneum. *Elytra* subquadrata thorace duplo latiora, postice recto truncata, obsoletissime striata, striis hic illic punctatis, interstitiis planissimis. *Postpectus* nigrum; femora ad apicem anguste infusca: tibiis ad apicem tarsisque nigris, his articulo quarto bifido sed non cordiformi.

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COPTODERA. Dej.

1. \* *viridipennis*. *Obscure viridis, antennarum basi ferruginea; elytris viridi-nitidis, tenue striatis.* Long. .26, lat. .11. Habitat in Alabama.

Obscure viridis; *antennæ* articulis tribus primis ferrugineis, reliquis fuscis. *Thorax* longitudine duplo latior, postice levissime angustatus, lateribus valde rotundatis, angulis posticis vix conspicuis, obtusissimis; margine basique depressus: linea longitudinali profunda, impressione transversa anteriore indistincta, posteriore profunda, punctoque basali distincta. *Elytra* viridinitentia, thorace latiora, deplanata, humeris rotundatis, satis prominentibus, lateribus leviter rotundatis postice oblique truncatis et sinuatis, tenuiter striata, striis versus apicem paulo profundioribus; interstitiis planissimis, tertio punctis duobus. *Subtus* nigra, *pedes* picci.

2. *aerata*. Knoch. Neue Beit. Habitat in provinciis australibus.
3. *signata*. Dej. Sp. Gen. Habitat cum prioro.

4. \* *collaris*. *Nigra*; *antennarum basi, pedibus, thorace (excepta macula mediali nigro picea) elytrorum margine tenuissimo, maculaque apicali, testaceis, apice summo brunneo*. Long. .22 unc. lat. .1 unc. Habitat in Georgia rarius.

Statura omnino *C. signatae*. *Caput* nigrum vix nitidum laeve, oculis magnis prominulis. *Antennae* ferrugineae, basi testaceae. *Thorax* planus, capite paulo latior, latitudine summa sesqui brevior, antice emarginatus, lateribus rotundatus, postice leviter retracts, margine reflexo versus basin latiore; linea longitudinali profunda, impressionibus transversis tenuibus; testaceus macula discoidali ante medium nigro-fusca. *Elytra* thorace fere sesqui latiora, subquadrata fere plana, postice sinuato-truncata; distincte striata; epipleuris, margine laterali tenuissimo, apicalique lato pallido, ad suturam quadratim dilatato apice summa brunnea. *Abdomen* brunneum; pedes testaceo ferruginei.

*C. signatam* valde refert; thorace tamen lateribus paulo minus rotundato, postice leviter angustato, elytrisque minus profunde striatis: *C. signata*, porro, fascia transversa pallida ante medium facile dignoscitur.

## THYREOPTERUS. Dej.

### EURYDERA. Lap.

1. *fasciatus*. *Nigro-aeneus nitidus, antennis, palpis, pedibus, elytrisque pallidis; his macula magna scutellari fascia lata undulata apiceque fuscis*. Long .2 unc, lat. .1. Habitat in provinciis australibus.

Coptodera fasciata. Hald. Proc. Ac. Nat. Sc. Vol. I.

*Nigro-aeneus nitidus*. *Caput* triangulare leve, puncto utrinque frontali impresso, oculis parvis vix exstantibus, mandibulae piceae, antennae palpiquo testacei. *Thorax* capite paulo brevior, longitudine summa sesqui latior, subquadratus antice leviter emarginatus, lateribus ante medium valde rotundatis, pone medium rectis, leviter retractis, basi recte truncato, angulis posticis obtusis apice non rotundatis; disco minus convexus, impressione trans-



versa anteriore indistincta posteriore valde profunda recta, linea longitudinali tenui, integra, basalibus parvis profundis, basi pone impressionem transversam subtilissime striato. *Elytra* thorace basi sesqui latiora, latitudine summa longiora, subquadrata, subplana, apice sinuato truncata; tenuiter striata, striis versus apicem paulo indistinctis, 1<sup>ma</sup>, 2<sup>da</sup> que integris 3<sup>ia</sup> et 4<sup>ta</sup> paulo abbreviatis, 5<sup>ta</sup> et 6<sup>ta</sup> conjunctim abbreviatis, 7<sup>ma</sup> integra versus apicem incurvata; stria abbreviata ad suturam; pallide testacea nitida; sutura, macula magna communi subscutellari, altera ad apicem, fasciaque communi lata ad suturam postice angulata fusco æneis; fascia nonnunquam medio pallida, guttas plures formante; epipleuris testaceis. Subtus piceo-æneus; *pedes* testacei; *metasternum* medio ferrugineum. Habitus fere Notaphi.

Obs.—Tarsi antichi maris articulis tribus dilatatis, sub-quadratis; intermediis fere filiformes.

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APTINUS. Bonelli.

1. *americanus*. Dej. Cat.; LeConte. Proceed. Ac. Nat. Sc. of Phil. Habitat in provinciis australibus.
2. *janthinipennis*. Dej. Sp. Gen. Habitat ad Lacum Onondaga, N. Y.

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BRACHINUS. Weber.

In speciebus omnibus boreali-americanis, caput et thorax ferruginei, et elytra cyanescentia, viridescentia, vel nigricantia sunt.

1. *alternans*. Dej. Sp. Gen. *Antennæ* fuscae, articulis duobus primis, tertiique basi ferrugineis; *caput* elongatum leve, postice punctatum, impressionibus frontalibus profundis, leviter punctatis. *Thorax* longitudine latitudinem excedens, antice leviter emarginatus, capiti arcte conjunctus, angulis deflexis; lateribus usque ad dodrantem rotundatis sed vix ampliatis, dein contractis, angulis posticis rectis paulo exstantibus: margine acute reflexo: convexus, leviter punctatus; impressione transversa anteriore angulata, profunda, posteriore distincta fere recta, linea longitudinali satis impressa, basalibus parvis non profundis. *Elytra* basi angusta, fere ad apicem ampliata, humeris valde rotundatis;

leviter punctata et pubescentia; subcostata, costis externis obsoletis, secunda et quarta paulo eminentioribus. Subtus fuscus; pectora trochanteres et pedes ferruginei. Long. .615, lat. .285. Habitat in provinciis australibus.

2. *\*ballistarius*. *Antennæ* sicut in *B. alternante*: *caput* multo latius, oculis magis exstantibus, læve, postice punctatum, impressionibus frontilibus minus profundis rugulosis. *Thorax* latitudine longitudinem æquans, antice latus, vix emarginatus, angulis anticis non deflexis, rectis, paulo porrectis, lateribus magis rotundatis paulo ampliatis, prope basin valde contractis fere strangulatis, angulis posticis acutis, subdivergentibus; margine tenui reflexo; minus convexus, leviter rugosus; impressione transversa anteriore margine approximata indistincta, posteriore profunda, linea longitudinali tenuissima, basalibus distinctis satis profundis. *Elytra* antice latiora, humeris minus rotundatis, lateribus vix ampliatis; nigrocyanea, costata; costis 2<sup>nda</sup> et 4<sup>ta</sup>, eminentioribus; interstitiis profundioribus, pubescentibus, vix punctatis. Subtus fuscus, trochanteres, pedes, et pectora medio, ferruginea. Long. .59, lat. .255. Habitat NovEboraci.

Ad hanc speciem forte referendus est *B. tenuicollis* (mihi Proceed. Ac. Nat. Sc. loc. cit.): sed specimen unicum a quo facta est descriptio valde imperfectum est, et non recte conferendum cum *B. ballistario*.

3. *\*similis*. Statura et forma omnino *B. ballistarii*. *Antennæ* fusæ, articulis duobus primis tertique basi ferrugineis. *Caput* elongatum, oculis prominulis, læve; impressionibus frontilibus latis, non profundis, leviter rugosis. *Thorax* latitudine caput æquans, longitudine paulo angustior, antice leviter emarginatus, angulis non rotundatis acutiusculis; lateribus usque ad medium leviter rotundatis, non ampliatis, dein rotundato-contractis, prope basin valde angustatis, non constrictis, angulis posticis acutis, divergentibus; margine tenui reflexo; disco leviter convexus, rugosus, sparse leviter punctatus; impressionibus transversis valde profundis, linea longitudinali tenui. *Elytra* nigricantia pubescentia, sparse punctata, distinctius costata, costis 2<sup>nda</sup> et 4<sup>ta</sup> acu-

tioribus, magis elevatis. Subtus fuscus, pectora trochanteres et pedes ferruginei. Long. .475, lat. .22. Habitat NovEboraci rarissime.

4. **strenuus**. LeConte. Proceed. Ac. Nat. Sc. loc. cit. sup.

*Antennæ* fortiores, ferruginæ, apico paulo obscuræ; *caput* angustum, læve, postice punctatum; impressionibus frontalibus profundis latis, subpunctatis. *Thorax* angustior, antice leviter emarginatus angulis deflexis vix conspicuis, lateribus leviter rotundatis non ampliatis, ad dodrantem retractis, sed minus quam in præcedentibus, angulis posticis rectis; margine acutius reflexo; convexus, distincte punctatus; impressione transversa anteriore medio profunda, posteriore distincta, linea longitudinali levissima et tenuissima, basalibus parvis. *Elytra* basi minus angustata, humeris valde rotundatis, lateribus levissime rotundatis et ampliatis, convexiora, obscure atra, valde pubescentia, subpunctata, costis lævibus, non politis, interstitiis minime profundis, postice obsoletis. Subtus fuscus, pedes et trochanteres obscure ferruginei. Long. .60, lat. .28. Habitat in Georgia.

5. **\*tormentarius**. *Antennæ* sicut in B. strenuo: *caput* punctatum medio læve, paulo latius, oculis minus exstantibus, impressionibus frontalibus latis, profundis. *Thorax* latior antice leviter emarginatus, angulis rotundatis, lateribus ad dodrantem valde rotundatis et paulo ampliatis, dein valde retractis angulis posticis divergentibus, exstantibus; margine reflexiore; minus convexus, dense punctatus; impressione transversa anteriore angulata distincta, posteriore profunda, linea longitudinali bene notata, basalibus parvis. *Elytra* planiora, basi angustiora lateribus multo magis ampliatis et paulo rotundatis, cyanea, costata; costis externis obsoletis, interstitiis profundioribus, leviter pubescentibus et punctatis. Subtus ferrugineus, lateribus paulo infuscatis. Long. .57, lat. .26. Habitat in provinciis occidentilibus.

6. **Deyrollii**. Ferté, Rev. Zool, 1841. Priorem valde refert.

*Antennæ* eadem: *caput* paulo angustius, minus punctatum, im-

pressionibus latis, sed non tam profundis. *Thorax* paulo angustior, capiti aetius conjunctus, angulis anticis non rotundatis; lateribus magis ampliatis et rotundatis, prope basin magis subito retractis, angulis posticis minus divergentibus, margine reflexo paulo angustiore: minus convexus, punctatus; impressione transversa anteriore valde angulata, distincta, posteriore paulo recurva, linea longitudinali tenui et distincta; basalibus paulo profundioribus, fere ad medium antice extendentibus, parte antica minus impressa. *Elytra* antice minus angustata, lateribus minus ampliatis, humeris magis rotundatis; obscure cyanea, pubescentia, levissime punctata; costata, costis externis subobsoletis, interstitiis angustiusculis, non profundis. Subtus ferrugineus, lateribus leviter infuscatis. Long. .575, lat. .27. Habitat in provinciis australibus.

7. *quadripennis*. Dej. Sp. Gen.

var. *neglectus*. LeConte. Proceed. Ac. Nat. Sc. of Phila.

*Antennæ* fuscae, articulis duobus primis ferrugineis. *Caput* subelongatum, fere laeve, punctis solum paucis pone oculos, impressionibus, longiusculis distinctis, antice punctatis. *Thorax* latitudine summa longior, capite non latior, antice leviter emarginatus, angulis anticis fere acutis, non deflexis, lateribus satis ampliatis, et usque ad dodrantem valde rotundatis, dein valde contractis, angulis posticis divergentibus prominulis; margine reflexo tenuissimo; convexus, laevis, rugulis transversis valde indistinctis obtectus: impressione transversa anteriore margini valde approximata, non profunda, margine antica leviter striata; posteriore ad medium obtuse angulata distincta, linea longitudinali tenui ad basin extendente, basalibus brevibus vix conspicuis. *Elytra* obscure atra (in varietato subcyanea) lata, humeris distinctis, valde rotundatis, lateribus leviter ampliatis, indistincte costata, costis postico et externe oblitteratis; obsoleto punctata, subpubescentia. Subtus obscurus, ad latera fuscus pectora trochanteres et pedes ferruginei. Long. .40, lat. .205. Habitat in provinciis australibus communius.

8. *lateralis*. Dej. Sp. Gen. Corporis forma B. quadripennem refert. *Antennæ* obscuræ articulo primo pallido, secundo ferrugineo, macula parva obscura. *Caput* latius, convexius læve, impressionibus breviusculis, linearibus, profundis. *Thorax* capite angustior, et ei arcte conjunctus, antice levissimo emarginatus, lateribus usque ad dodrantem rotundatis, non ampliatis, dein paulo contractis, angulis posticis acutis, divergentibus, prominulis; margine tenuissimo reflexo; valde convexus, lævis; impressione transversa anteriore margini approximata distincta, posteriore valde profunda, recta, linea longitudinali tenui distincta, utrinque abbreviata. *Elytra* obscure atra, margine angusta pallida, quam in præcedente basi angustiora, humeris minus rotundatis lateribus magis ampliatis; obsolete costata, levissime rugosa, pube breve vestita. *Epipleuræ* postice pallidæ. Subtus ferrugineus, ad latera fuscus; pedes pallidi, genubus obscuris. Long. .33, lat. .165. Abundat in provinciis australibus.
9. *patruelis*. Dej. Cat: LeConte. Proceed. Ac. Nat. Sc. of Phila. *Antennæ* obscuræ, articulis duobus primis, tertiique basi ferrugineis, *caput* mediocre, læve, impressionibus exadversum oculorum medium desinentibus, profundis, rectis postice leviter dilatatis. *Thorax* latitudine summa paulo longior, capite non latior, antice leviter emarginatus angulis valde rotundatis deflexis, lateribus modice rotundatis, vix ampliatis, prope basin valde angustatus sed non constrictus, angulis posticis, fere rectis; margine tenui valde reflexo; lævis, quam in præcedentibus minus convexus; impressione transversa anteriore angulata, indistincta, posteriore leviter impressa, linea longitudinali tenui profunda, integra, basalibus prolongatis, ante medium tendentibus, sed valde indistinctis, rectis. *Elytra* obscure atra, subconvexa, basi angusta, humeris satis distinctis, lateribus usque ad dodrantem ampliatis; costis latis obtusis vix elevatis, interstitiis valde angustis, ita ut obsolete striata videntur. Subtus obscurus, pectora medio, trochanteres et pedes ferruginei. Long. .365, lat. .175. Habitat NovEboraci, et in provinciis australibus.



10. **Lecontei**. Dej. Cat. et LeConte. loc. cit. sup. Angustior; *antennæ* obscuræ, articulis duobus primis ferrugineis; *caput* elongatum, punctatum, medio læve, impressionibus profundis; oculi vix prominuli. *Thorax* capite non latior, latitudine dimidio fere longior, capiti arcte conjunctus, antice leviter emarginatus, angulis deflexis; lateribus leviter rotundatis non ampliatis, prope basin contractus, non constrictus; angulis posticis rectis non divergentibus; margine tenui reflexo; subconvexus, punctatus; impressione transversa anteriore angulata, profunda, posteriore minus distincta, linea longitudinali profunda, utrinque abbreviata. *Elytra* cyanescentia, basi angusta, humeris valde rotundatis, lateribus leviter ampliatis, convexa, pubescentia, punctata; costata, costa 2<sup>nda</sup> paulo distinctiore, interstitiis latis modice profundis. Subtus fuscus, pectora, trochanteres et pedes ferruginei. Long. .51, lat. .21. Habitat in provinciis australibus.

11. **perplexus**. Dej. Sp. Gen. Angustior: *antennæ* obscuræ, articulis duobus primis, tertiiq. basi ferrugineis. *Caput* quam in *B. LeContei* paulo brevius et latius, læve, punctis paucis posticis, impressionibus frontalibus valde profundis, rugosis. *Thorax* latitudine caput æquans, quam in præcedente paulo brevior, angulis anticis rotundatis, prominulis, lateribus usque ad medium fere rectis, dein rotundato-contractis, prope basin retractis sed non constrictis, angulis posticis divergentibus; margine valde reflexo: multo minus convexus, sparse punctatus; impressionibus transversis vix distinctis, linea longitudinali bene impressa, integra. *Elytra* cyanescentia humeris rotundatis distinctis, lateribus leviter ampliatis; convexa, pubescentia, subtilius punctata; costis latis, interstitiis angustis, minime profundis, ita ut striæ obsoletæ videntur. Subtus, ferrugineus, lateribus fuscis. Long. .44, lat. .17. Habitat NovEboraci.

12. **fumans**. Fabr. Syst. Eleuth.: Dej. Sp. Gen.

*cyanopterus*. Dej. MS.; LeConte. Proceed. Ac.  
Nat. Sc. Vol. I.

Angustior; *antennæ* articulis quatuor primis ferrugineis, reliquis obscuris; *caput* fere ut in præcedente, impressionibus tamen pro-



fundioribus, et sparse punctatis. *Thorax* fere ut in præcedente, angulis anticis minus rotundatis, lateribus usque ad medium fere rectis, leviter ampliatis, postice magis retractis, angulis posticis valde divergentibus; margine latiore reflexo, præsertim versus angulos anticos; subplanus, sparse punctatus; impressione transversa anteriore valde angulata, non profunda, posteriore nulla, linea longitudinali profunda utrinque abbreviata. *Elytra* subcyanea, fere parallela, humeris valde rotundatis sed satis distinctis; minus convexa, pubescentia, leviter punctata; costata, interstitiis profundioribus, latis, costis externis fere obsoletis. Subtus obscure ferrugineus, lateribus fuscis, pedes ferruginei. Long. .475, lat. .205. Habitat NovEboraci.

α *Elytra* viridescencia.

13. \**sufflans*. Priorem valde refert. *Antennæ* et caput eadem. *Thorax* paulo angustior, capiti arctius conjunctus, angulis anticis deflexis, lateribus magis rotundatus postice paulo magis retractus; convexior, minus punctatus, rugulis plurimis distinctis; linea longitudinali tenuiore, impressione transversa anteriore angulata, distinctiore, posteriore nulla. *Elytra* sicut in *B. fumante*. Subtus ferrugineus, ad latera leviter infuscatus. Long. .495, lat. .20. Habitat NovEboraci.
14. \**affinis*. Corporis forma, *B. viridipennem* refert, sed elytra multo magis parallela. *Antennæ* articulis quatuor primis ferrugineis, reliquis fusciscentibus. *Caput* subelongatum, oculis vix prominulis, læve punctis paucis pone oculos, et in impressionibus frontalibus, quæ longæ sunt, sed non profundæ. *Thorax* capite vix latior, latitudine non longior, antice emarginatus, angulis valde rotundatis depressis: lateribus usque ad medium fere rectis, dein rotundato-angustatis, prope basin contractis non constrictis, basi quam in alteris paulo latiore; angulis acutis divergentibus; margine tenuissimo reflexo; disco subconvexus, dense punctatus, impressionibus transversis vix observandis, linea longitudinali integra, medio minus profunda, basalibus latis. *Elytra* longiora, parallela, humeris valde rotundatis; cyanescentia, pubescentia, subtilius punctata; distinctius costata, costis postice et

externe obsoletis, interstitiis latis exaratis. Subtus ferrugineus, lateribus leviter infuscatis. Abdomen densius pilosum. Long. .465, lat. .20. Habitat in Indiana ad flumen Ohio.

15. *viridipennis*. Dej. Sp. Gen. Angustior; *antennæ* crassiusculæ, obscuræ, articulis duobus primis tertique basi ferrugineis. *Caput* elongatum leviter punctatum, medio læve; impressionibus frontilibus latis brevibus non profundis. *Thorax* latitudine caput æquans, latitudine summa longior, capiti arcu connexus, angulis anticis deflexis, lateribus rotundatis non ampliatis, pone medium regulariter contractis, minime constrictis, angulis posticis rectis, vix divergentibus, margine tenuissimo reflexo; convexus, densius minus fortiter punctatus; impressione transversa anteriore valde angulata, profunda, posteriore leviter impressa, basalibus brevibus, linea longitudinali tenui postice abbreviata. *Elytra* viridescencia, valde pubescentia, densius subtilius punctata; basi angusta, humeris valde rotundatis, indistinctis, lateribus leviter ampliatis; subcostata, costis postice et externe obsoletioribus, interstitiis latis obtusis. Subtus fuscus, pectora, trochanteres, et pedes ferruginei. Long. .55, lat. .235. Habitat in provinciis australibus sat frequens.

16. *viridis*. LeConte. Proceed. Ac. Nat. Sc. of Phila. *B. viridipennem* valde refert. *Antennæ* et *caput* eadem. *Thorax* antice paulo angustior, postice minus retractus, angulis posticis modice divergentibus; minus convexus, minus dense punctatus; impressione posteriore profundiore, linea longitudinali fortiter impressa, postice abbreviata. *Elytra* hæc viridia, antice paulo angustiora, lateribus magis ampliatis; distinctius costata, costis 2da et 4ta paulo evidentioribus, interstitiis profundioribus. Subtus sicut in *B. viridipenne*. Long. .50, lat. .21. Habitat in provinciis australibus rarissime.

17. *cephalotes*. Dej. Sp. Gen. Angustior; *antennæ* attenuatæ, ferruginæ apice paulo obscuræ; *caput* latum oculis prominulis, ad latera leviter punctatum, impressionibus frontilibus latis, profundis. *Thorax* capite angustior, latitudine summa longior, antice vix emarginatus, angulis rotundatis, lateribus rotund-

atis, non ampliatis, pone medium regulariter retractis, minime constrictis, angulis posticis divergentibus; margine acute reflexo; convexus, leviter punctatus; impressionibus transversis indistinctis, linea longitudinali profunda, tenui. *Elytra* cyanescentia, pubescentia, vix punctata; basi valde angustata, humeris valde rotundatis, sed satis distinctis, lateribus usque ad dodrantem ampliatis; levissime et obtuse costata. Subtus ferrugineus lateribus infuscatis. Long. .355—30, lat. .15—12. Habitat ubique.

18. \* *velox*. B. cephalotem refert. *Antennæ* attenuatæ, longitudine corpus æquantes, ferruginæ, apice paulo obscuræ. *Caput* impressionibus longioribus, profundioribus valde punctatis. *Thorax* brevior antice valde latior, vix emarginatus, angulis deflexis, lateribus valde rotundatis, prope basin retractis, angulis posticis acutis, valde divergentibus; margine tenuissimo reflexo; sparse subtilius punctatus, minus convexus; impressione transversa anteriore vix distincta, posteriore modico profunda, linea longitudinali tenui integra. *Elytra* fere sicut in B. cephalote, antice paulo minus angustata, humeris minus rotundatis; costis externis obsoletissimis. Subtus obscurus, pectora, trochanteres et pedes ferrugineæ. Long. .30, lat. .125. Habitat NovEboraci.

19. *cardicollis*. Dej. Sp. Gen. Corporis forma B. quadripennem valde refert. *Antennæ* ferruginæ, apice obscuræ. *Caput* majus, ad latera sparse punctatum, impressionibus frontali-bus latis profundis. *Thorax* latitudine non longior, antice leviter emarginatus, angulis obtusis, deflexis, lateribus valde rotundatis, usque ad medium ampliatis, prope basin valde contractis fere constrictis, angulis posticis modico divergentibus; margine valde reflexo; modico convexus, obsolete rugosus et punctatus; impressione transversa anteriore vix distincta, posteriore valde profunda, linea longitudinali profunda integra, basalibus rectis, profundis. *Elytra* obscure cyanescentia, pube densa breviora vestita, obsoletissimo rugosa, magis parallela quam in B. quadripenni, humeris minus rotundatis; evidentius costata, costis ex-

terne et postice obsoletis, interstitiis latis. Subtus ferrugineus. Long. .35, lat. .155. Habitat NovEboraci.

20. *conformis*. Dej. Sp. Gen. Corporis forma *B. fumantem* refert: triplo minor. *Antennae* tenues, articulis duobus primis, tertii, quartique basi ferrugineis, reliquis obscurioribus. *Caput* latum, fere laeve, punctis paucis pone oculos; impressionibus frontalibus longis, profundis, rugosis. *Thorax* latitudine paulo longior, capite non latior, antice leviter emarginatus, angulis valde obtusis, deflexis, lateribus usque ad medium rotundatis, vix ampliatis, prope basin retractis, non constrictis, angulis posticis acutis valde divergentibus; margine valde reflexo, antico paulo latiore; convexus, leviter rugose-punctatus; impressione transversa anteriore profunda, angulata, posteriore distincta, recta, linea longitudinali profunda, antice abbreviata. *Elytra* cyanescentia, pubescentia, vix punctata, fere laevia, costis 2da et 4ta distinctis postice oblitteratis, margine extimo reflexo, paulo latiore quam in praecedentibus; humeris valde rotundatis sed satis distinctis, lateribus fere parallelis. Subtus obscurus; trochanteres, pedes, pectoraque ferruginea. Long. .365, lat. .155. Habitat NovEboraci.

21. *medius*. Harris. Cat. Parvus, subelongatus: *antennae* elongatae, obscurae, articulis duobus primis tertiique basi ferrugineis. *Caput* latum convexum laeve, impressionibus frontalibus profundis, rugosis. *Thorax* latiusculus, antice emarginatus, angulis deflexis, obtusis, lateribus usque ad medium rotundatis leviter ampliatis, prope basin valde retractis fere constrictis, angulis posticis acutis valde divergentibus; margine reflexo tenuissimo; leviter convexus, laevis; impressionibus transversis distinctis, anteriore valde angulata, linea longitudinali profunda, integra, basalibus brevibus profundis. *Elytra* subcyanea, minus opaca, humeris valde rotundatis sed distinctis, lateribus leviter ampliatis fere parallelis; densius pubescentia, vix punctata, obsolete costata, sutura costisque 2da et 4ta paulo elevatis. Subtus ferrugineus, lateribus abdomineque infuscatis. Long. .22, lat. .10. Habitat NovEboraci, ad lacum Onondaga.

22. \**pumilio*. Minutus, forma B. cephalotem refert. *Antennæ* ferrugineæ apice leviter infuscata. *Caput* magnum, postice magis retractum, læve, impressionibus frontilibus valde profundis, latis. *Thorax* latiusculus, antice non emarginatus, angulis obtusis, lateribus usque ad medium leviter ampliatis et rotundatis, prope basin valde angustatus, angulis posticis rectis; margine reflexo vix conspicuo; leviter convexus, lævis; impressionibus transversis obsoletis, linea longitudinali profunda, antico abbreviata. *Elytra* subcyanea, basi angusta, lateribus ampliatis, et leviter rotundatis, costis fere nullis, pubescentia, leviter punctata. Subtus ferrugineus. Long. .20, lat. .09. Habitat cum priore.

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HELLUOMORPHA. Lap.

*HELLUO.* p. Dej.

1. *Clairvillei*. Dej. Sp. Gen. Habitat in provinciis australibus.
2. *præusta*. Dej. Sp. Gen. Habitat cum priore et in Territorio Missouriensi.
3. *laticornis*. Dej. Sp. Gen. Habitat in Georgia et Carolina.
4. *nigripennis*. Dej. Sp. Gen. Habitat etiam in provinciis australibus.

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PSYDRUS. LeConte.

1. *piceus*. LeConte. Annals of the Lyceum, Vol. IV. Habitat ad Lacum Superiorem.

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APLOCHILE.\* nov. gen.

*CORPUS* elongatum, subcylindricum.

*CAPUT* magnum, supra et subtus convexum, postice non constrictum.

*LABRUM* brevissimum, non observandum.

*MANDIBULÆ* latæ, validæ, apice vix acutæ.

(*MAXILLÆ* non visæ.)

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\* απλως, simplex et χιλλη, labrum.

**MENTUM** magnum, modice concavum, late modice emarginatum, emarginatione basi plana, dente nullo.

**PALPI** tenues, articulo ultimo cylindrico, apice leviter truncato.

**ANTENNÆ** breves, versus apicem incrassatæ, articulo 1<sup>mo</sup> brevi, crasso; 2<sup>do</sup> sesqui brevior, crassitie non longior; 3<sup>io</sup> duplo longior leviter obconico; reliquis discretis, globulosis, æqualibus; ultimo vix longior, obovali, apice subacuto.

**OCULI** majusculi, rotundati.

**THORAX** subcordatus, convexus, lateribus vix rotundatus, postico retractus, antice et postice truncatus.

**SCUTELLUM** nullum.

**ELYTRA** parallela, thorace cum capite fere duplo longiora, apice rotundata, linea elevata, brevi, submarginali ad apicem.

**PEDES** mediocres: *tarsi* breviusculi, antici latiusculi, articulis subæqualibus, 3 primis triangularibus; reliqui articulo 1<sup>mo</sup> paulo longior, ultimo sesqui longior; *tibiæ* anticæ intus valde profunde emarginatæ, spina apicali valida.

**UNGUES** simplices.

A *Psydro* differt habitu convexiore, capite subtus convexo, postice non constricto, oculis majoribus; labro vix conspicuo; antennarum articulis magis discretis, articulo ultimo reliquis vix longior, apice subacuto (in *Psydro*, sesqui longior, apice valde obtuso, rotundatoque); mento majore, minus concavo: *Nomius* (Laporte) esse videretur, nisi scutellum ejus breve, thoraxque fortiter marginatus abhorrent.

1. *pygmaeus*. Dej. Sp. Gen. (Morio.) Habitat in Alabama rarius; a Dom. Haldeman amicissime datus.

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SPECIES MIHI INVISÆ.

*Aretharea* (Say.) *helluonis*. Say. Trans. Am. Phil. Soc. N. S. Vol. IV.



**Zuphium** (Lat.) **americanum**. Dej. Sp. Gen.

Habitat ubique rarissime.

**Cymindis morio**. Dej. Sp. Gen.

**Calleida rubricollis**. Dej. Sp. Gen.

**Dromius gemmatus**. Haldeman ibid. Habitat in Pennsylvania.

**Lebia russata**. Newman. Ent. Mag. Vol. V. Habitat in Florida.

**marginella**. Dej. Sp. Gen. Habitat in provinciis australibus.

**Helluo pygmaeus**. Dej. Sp. Gen.

{ **Heteromorphus** (Kirby,) **exerucians** (Kirby.)  
Linnean Trans.  
**Drepanus** (Illiger,) **LeContei**. Dej. Sp. Gen. Habitat in provinciis australibus.

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Sub. Fam. II.—*Scaritides*.—Dej.

*Bipartiti*.—Latreille.

*Scaritidæ*.—MacLeay.

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SCARITES. Fabr.

1. **Ephialtes**. LeConte. Bost. Journ. Nat. Hist. Vol. V.  
Habitat in prov. australibus, habitat etiam ad Rocky Mountains.

2. **quadriceps**. Chaudoir. Bull. Soc. Imp. des Nat. de Moscou. No. IV.

**substriatus**. Haldeman. Proceed. Ac. Nat. Sc. Habitat in provinciis australibus.

**distinctus**. Hald. ibid. (var. sulco mandibulari basi paulo minus dilatato.)

3. *intermedius*. LeConte. Bost. Journ. Nat. Hist. Habitat in provinciis occidentalibus.
4. *subterraneus*. Fabr. Habitat ubique: striæ clytrales obsolete punctatæ, sæpe fere læves.
5. *vicinus*. Chaudoir. loc. cit.  
*affinis*. LeConte. Bost. Journ. Nat. Hist. Habitat ubique.
6. *patruclis*. LeConte, ibid. Habitat in provinciis australibus.  
*denticollis?* Chaudoir loc. cit.

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PASIMACHUS. Bonelli.

1. *depressus?* Fabr. Syst. Eleuth.  
LeConte. Annals of the Lyceum Nat. Hist. Vol. IV. Habitat in Georgia.
2. *morio*. LeConte. ibid. Habitat in provinciis australibus.
3. *punctulatus*. Haldeman. Proceed. Ac. Nat. Sc. Habitat in provinciis australibus, et ad Rocky Mountains.
4. *laevis*. LeConte. An. Lyc. Habitat in NovaCæsarea.
5. *elongatus*. LeConte. ibid. Habitat in territorio Missouriensi.
6. *obsoletus*. LeConte. ibid. Habitat ad Rocky Mountains.
7. *substriatus*. LeConte. Proceed. Ac. Nat. Sc. et An. Lyc. Habitat insulam Longam, NovEboraci.
8. *assimilis*. LeConte. An. Lyc. Habitat in provinciis australibus.
9. *rugosus*. LeConte. ibid. Habitat in provincia NovaCæsarea.
10. *sublaevis*. Beauvois. Ins. d'Amer. Habitat in Georgia.
11. *subsulcatus*. Say. Trans. Am. Phil. Soc. Habitat in provinciis australibus.
12. *marginatus*. Fabr. Syst. Eleuth.

*sulcatus*. MacLeay. Dej. Cat. Habitat in provinciis australibus communius.

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DYSCHIRIUS. Megerle.

*CLIVINA*. p. Dej. et aliis.

1. *crenatus*. Dej.

*bipustulatus*. Say. Trans. Am. Phil. Soc.

♂ *humeralis*. Chaudoir. loc. cit. (exemplum immaturum.)

Habitat in provinciis australibus communius: interstitia clythralia in mare paulo latiora quam in fœmina.

2. *subangulatus*. Chaudoir. ibid. Habitat ad Rocky Mountains et Novum Aurelianum.

3. *viridis*. Say. Trans. Am. Phil. Soc.

*rostratus*. Dej. Habitat ubique rarius.

4. *sphæricollis*. Say. Trans. Am. Phil. Soc. Habitat ubique rarius.

5. *pumilus*. Dej. Sp. Gen. Habitat ubique.

6. *globulosus*. Say. Habitat ad Lacum Superiorem, et Rocky Mountains.

7. *haemorrhoidalis*. Dej. Sp. Gen. Habitat in provinciis mediis et occidentalibus.

8. \**terminatus*. *Niger, clytris æneis, apice obscure rufis striatopunctatis; pedibus, abdomineque rufo-piceis.*  
Long. .135, lat .045. Habitat NovEboraci.

Elongatus niger nitidus; *frons* utrinque oblique profunde striata; *oculi* valde exstantes; *palpi* et *antennæ* rufæ. *Thorax* sub-globosus, convexus: impressione transversa anteriore valde angulata, vix distincta, linea longitudinali omnino oblitterata. *Elytra* ænea, nitida, apice obscure rufa, latitudine thoracem æquantia, elongata, versus apicem levissime attenuata, rotundata, striata; striis leviter punctatis, ad tridentem ab apice obsoletis, prima integra, ad apicem incurvata; interstitio tertio punc-

tis tribus impressis. *Abdomen* rufo-piccum, *pedes* obscure rufi.

D. hæmorrhoidalem (Dej.) refert.

CLIVINA. Latreille.

1. *dentipes*. Dej. Habitat in provinciis australibus rarius.

2. *bipustulata*. Fabr. Syst. Eleuth.

α macula quoque humerali. = *4-maculata*. Beauvois et Say. Habitat ubique.

3. *convexa*. LeConte. Proceed. Ac. Nat. Sc. of Phil. Habitat in provinciis australibus rarius. Long. '205 lat. '06.

Priorem valde refert; multo minor: *caput* impressionibus brevioribus; linea transversa pone oculos, quæ in *C. bipustulata* valde obsoleta, in hac satis distincta est. *Thorax* antice latior, angulis anticis rectioribus, et minus rotundatis; convexior, linea longitudinali multo leviori, et impressione transversa anteriore, vix distincta. *Elytra* eadem ac in *C. bipustulata*.

4. *impressifrons*. LeConte. *ibid.* Habitat cum priore. Long. '26, lat. '07.

Cylindrica, obscure rufa, *caput* utrinque impressione longa, lata, profunda, lineaque mediana profunda; pone oculos transverse impressum. *Thorax* latitudine summa longior, parallelus, postice rotundatus, angulis anticis rectis vix rotundatis, impressione transversa anteriore tenui et profunda, margini subapproximata, linea longitudinali distincta; impressionibus basalibus linearibus, distinctis. *Elytra* parallela, elongata, apice rotundata, profunde striata, striis punctatis, obsoletius versus apicem: interstitio quarto punctis 4 vel 5 parvis.

5. *americana*. Dej. Sp. Gen. In provinciis australibus.

6. *striatopunctata*. - Dej. Sp. Gen. Cum priore.

7. \* *postica*. Nigra, nitida; *thorace* angulis anticis subrectis, *elytra* profunde striatopunctata, macula subapicali obscure rufa. Long. '21 lat. '065. Habitat ad Rocky Mountains.

*C. striatopunctatam* refert: *caput* idem, oculis minus promi-

nentibus; *thorax* latior, convexior, brevior, lateribus fere parallelis postice vix ampliatis, angulis anticis rectioribus, paulo magis rotundatis; impressionibus sicut in *C. striatopunctata*. *Elytra* paulo latiora et breviora, striis paulo profundioribus, macula parva, rotunda, obscure rufa prope apicem. *Pedes* nigro-picei.

8. *pallida*. Say. Trans. Am. Phil. Soc.

*rufescens*. Dej. Sp. Gen. Habitat in provinciis australibus.

9. *lineolata*. Say. Trans. Am. Phil. Soc.

*acuducta?* Haldeman. Proceed. Ac. Nat. Sc.

*sulcifrons*. Dej. Cat. Habitat ubique rarius. Long. '185 lat. '055.

Nigro-aenea, vel obscure rufo-picea: *frons* antice impressa, lineaeque transversa, tenui notata; inter oculos profunde 5 vel 7 striata, stria media lata excavata, sulcata; interstitiis linearibus, elevatis, acutis, duobus mediis antice productis. *Caput* pone oculos subito constrictum. *Thorax* subpentagonus, antice paulo angustatus, angulis anticis fere rectis; posticis valde obtusis, sed non rotundatis, basi utrinque recta, valde obliqua; impressionibus transversis, lineaeque longitudinali profundis; basalibus profundis, linearibus, antice productis, ad marginem anticum fere extendentibus. *Elytra* thorace paulo latiora, profunde striatopunctata, interstitiis convexis, angustis, punctis paucis. *Antennae* et *pedes* rufo-picei.

10. \* *sulcata*. *Rufa*; *fronte* *sulcata*; *thorace* *angulis* *posticis* *rotundatis*, *impressionibus* *basalibus* *elongatis*; *elytris* *profunde* *striatis*. Long. '16 lat. '05. Habitat Nov-Eboraci.

Refert priorem, sed angustior et magis cylindrica. *Rufa*; *frons* sicut in *C. lineolata*; oculis minus exstantibus; *caput* postice minus constrictum. *Thorax* angustior, convexior, antice vix angustatus, angulis anticis obtusis; posticis valde obtusis et rotundatis, vix distinctis; impressionibus transversis et linea longitudinali profundis: basalibus linearibus, rectis, profundioribus, ante

medium extendentibus. *Elytra* angustiora, magis, cylindrica, apice magis rotundata; profunde striata, striis impunctatis, interstitio tertio punctis duobus.

11. \**frontalis*. *Rufa*, *depressior*: *fronte* *sulcata* *thorace* *angulis* *posticis* *obliteratis*; *impressionibus* *basalibus* *rectis*, *productis*; *elytris* *profunde* *striatopunctatis*, *interstitio* *tertio*, *quinto* *et* *septimo* *serie* *punctorum*.  
 Long. .145 lat. .04. Habitat Westchester Co., N. Y.  
 A Dom. Jac. Thompson, benevole datus.

Præcedentes duos refert, *depressior*, et magis *parallelus*. *Rufa*; *caput* et *frons* sicut in *C. sulcata*, striis paulo minus profundis. *Thorax* antice non angustatus, angulis fere rectis, vix rotundatis; lateribus usque ad medium leviter rotundatis, dein usque ad basin subito rotundato-contractis, angulis posticis omnino obliteratis: disco planiusculus; impressionibus transversis sicut in priore, linea longitudinali valde profunda. *Elytra* deplanata, parallela, apice obtuse rotundata, profunde striato-punctata, punctis postice obsoletis, interstitio tertio, quinto et septimo, serie punctorum, 7 vel 8.

Speciei huicce *C. amphibia* (Hald. loc. cit. sup.) forte pertinet. Descriptio tamen ejus imperfecta et nimis concisa; seriebus punctorum interstitialibus non meminit; ceteris cum insecto nostro quadrat.

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SPECIES SEQUENTES MIHI INVISÆ.

*Dyschirius morio*. Dej. Sp. Gen. Habitat in provinciis australibus.

*puncticollis*. Dej. Sp. Gen.

*pallipennis*. Say. Trans. Am. Phil. Soc.  
 Habitat in provinciis mediis.

*Clivina elongata*. Randall Journ. Bost. Soc. Nat. Hist.  
 Vol. I. Habitat in Massachusetts.



Sub. Fam. III.—*Harpalides*.—Westwood.*Harpalidæ*.—McLeay.*Thoracici*.—Lat.Divisio 1.—*Feronidea*.—Westwood.*Feroniens*.—Dej.*Simplicimani*.—Lat.

## MORIO. Lat.

1. *Georgiac*. Pal. de Beauv. Ins. d'Am.*monilicornis*. Lat. : Dej. Sp. Gen.*costatus*. Germar. Abundat in provinciis australibus.

## PATROBUS. Megerle.

1. *longicornis*. Say. Trans. Am. Phil. Soc.*americanus*. Dej. Sp. Gen. Habitat in provinciis mediis.

## CALATHUS. Bon.

1. *distinguendus*. Le Conte. Proceed. Ac. Nat. S. of Phila. Vol. I.

Color omnino sicut in *C. gregario*; forma paulo angustior, nitidior. *Caput* omnino idem, oculis tamen minoribus minus exstantibus. *Thorax* antice magis rotundatus, angulis anticis magis prominentibus acutiusculis, postice levissime retractus, angulis posticis obtusis, subrotundatis; margine lato depresso antice evanescente, leviter reflexo (in *C. gregario* plano;) linea longitudinali fere oblitterata, impressione transversa anteriore valde angulata, posteriore recta, ambabus indistinctis, basalibus nullis; antice valde convexus, disco medio leviter convexus, versus basin subdepressus. *Elytra* subparallela, leviter convexa, striis paulo profundioribus quam in *C. gregario*, tertio punctis 3 majusculis. Long. .44 lat. .17. Habitat in Georgia rarissime.

2. *gregarius*. Say. Trans. Am. Phil. Soc. Habitat ubique.

PRISTODACTYLA. Dej.

1. *impunctata*. Say. Trans. Am. Phil. Soc. Vol. II. (Feronia.)

*americana*. Dej. Sp. Gen. Habitat in provinciis mediis rarius.

2. \**corvina*.

*americanus*. Le Conte loc. cit. sup. (Pristonychus.)

*Angustior nigra nitida; thorace subquadrato, postice leviter deplanato, clytris profunde striatis, punctis tribus impressis, antennis pedibusque rufis.* Long, '43 lat. '15. Habitat in Georgia rarissime.

*Angustior, nigra nitida. Caput* subtriangulare oculis parvis vix prominulis, laeve, impressionibus frontalibus subrotundatis; antennae, palpique rufi. *Thorax* subquadratus, antice leviter emarginatus, vix angustatus, lateribus modice rotundatus, angulis posticis obtusis, basi utrinque obliquo, medio recto; modice convexus, versus basin leviter depressus, rugulis indistinctis transversis medio notatus; pone medium margine angusto, reflexo, versis basin crescente; impressione transversa anteriore nulla, posteriore recta, distincta, linea longitudinali utrinque paulo abbreviata, basalibus subrotundatis, profundis, subtiliter rugosis, striola brevi longitudinali signatis. *Elytra* subparallela apice rotundata, profunde striata, interstitio tertio punctis 3 validioribus. *Pedes* cum coxis saturate rufi.

Obs.—A *P. impunctata* forma angustiore, thorace antice non angustato, postice subdepresso; punctorum necnon serie clytrali marginali minus profunda differt.

3. \**advena*. *Nigra nitida subdepressa, thorace subquadrato, postice subangustato, impressionibus profundis, clytris striatis punctis duobus impressis. antennis pedibusque picco-brunneis.* Long, '39, lat. '145. Habitat prope fines Aquilonis a Dom. Brevoort amicissime data.

Habitus fere Anchomenorum quorundam, sed ad hoc genus recte pertinet. Nigra, nitida, subdepressa. *Caput* subtriangulare, postice retractum, oculis magis exstantibus, læve impressionibus frontalibus parvis, subrotundatis; antennæ picæ, articulo primo cum palpis rufo-picceis. *Thorax* subquadratus antice leviter emarginatus, vix angustatus, angulis anticis deflexis, lateribus subleviter rotundatus, postice subangustatus, basi medio late recto, ad latera paulo obliquo, angulis posticis valde obtusis leviter rotundatis; margine pone medium valde reflexo, versus basin leviter crescente; disco antice modico convexus, postice subdepressus, lævissimus; linea longitudinali tenui valde impressa, utrinque abbreviata, impressione transversa anteriore valde angulata, posteriore recta, ambabus profundis, basalibus profundis, antice ad medium fere obsolete prolongatis, ad basin striola brevissima notatis. *Elytra* subplana, thorace sesqui latiora, apice rotundata, profunde tenuiter striata, interstitio tertio punctis 2 prope striam secundam, 1<sup>mo</sup> ad medium, 2<sup>da</sup> paulo pone dodrantem. *Pedes* piceo-brunnei.

Optimo hæc species *Pristodactylum* cum *Pristonycho* conjungit.

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#### RHADINE. gen. nov.

*CORPUS* gracillimum, medio profunde constrictum, abdomine brevilatiusculo, supradepressum, subtus convexum.

*CAPUT* rhomboideum ore acuto, pone oculos valde retractum.

*LABRUM* planum, latitudine non brevius, lateribus rectis, antice emarginatum.

*OCULI* mediocres, prominuli.

*MENTUM* lateribus leviter rotundatum, antice profunde emarginatum, dente valido simplici instructum; angulis anticis acutis porrectis.

*PALPI* subelongati filiformes, articulo ultimo leviter ovali, maxillarium externorum penultimo æquante, apice truncato; labialium penultimo sesqui brevior, apice vix truncato, fere rotundato.

**ANTENNÆ** elongatæ, setacæ, articulo primo crassiore; 2<sup>ndo</sup> duplo brevior tenuioreque; 3<sup>io</sup> valde elongato, sequentes duos longitudine æquante; 4<sup>to</sup> sequentibus paulo longiore, reliquis longitudine sensim descrecentibus, ultimo apice acuminato.

**THORAX** capite paulo latior, postice valde retractus, ab elytris remotus, cordatus.

**ELYTRA** breviuscula, ovalia, apice oblique profunde sinuatim incisa; connata.

**PEDES** valde elongati, tibiæ spinulosæ; tarsi graciles, postici valde elongati, articulo omnium 1<sup>mo</sup> elongato, sequentibus tribus longitudine æqualiter descrecentibus, ultimo præcedentes duos æquante; ungues simplices.

**PROSTERNUM** postice prominens, compressum.

Obs.—Genus *Platynum* appropinquat, sed antennarum labiique structura ei abhorret. Antennarum articulo tertio elongato cum *Sphodro* convenit, cui tamen dens labialis bifidus.

1. \* *larvalis*. *Pallide rufo-picca, nitidissima; thorace cordato. postice valde angustato, margine lato reflexo, elytris obsoletissime striatis, margine valde reflexo.* Long. .41, lat. .15. Habitat in vicinia urbis St. Louis: a Dom. Engelman benevole datus.

Insectum insigne. Tota dilute rufo-picca, nitidissima. *Caput* læve, linea transversa inter antennas, impressioneque parva antica incurva notatum: impressionibus frontalibus, latis leviter rugosis, linea longitudinali obliqua impressis. *Thorax* cordatus. capite paulo latior, latitudine summa longior, antice profunde emarginatus, angulis anticis rotundatis, lateribus usque ad medium valde rotundatus, dein recte retractus, basi latitudinis summæ dimidium æquante, leviter emarginato; margine toto lato valde reflexo, versus basin crescente, et toti basis trientem æquante, angulis posticis valde elevatis, obtusis, dente minuto prominulo instructis: disco planus, impressione transversa anteriore fere nulla, posteriore profunda, antice acute angulata.

linea longitudinali fortissime impressa, basalibus linearibus, longis, obliquis. *Scutellum* minutum apice acutum. *Elytra* basi angustissima, a thorace pedicello brevi remota, ovalia, thorace sesqui latiora, latitudine summa vix duplo longiora, apice profunde sinuato-incisa, margine acute reflexo et elevato, pone quadrantem latiore, cum plica acuta, basali elevata connexo; obsolete striata, striis externis hic illic obsolete punctatis, serie punctorum marginali valde profunda.

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PLATYNUS.

1. *erythropus*. Dej. Sp. Gen. Habitat in provinciæ Novæ Eboraci parte occidentali.
2. *angustatus*. Dej. ibid. Habitat cum priore.

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ANCHOMENUS. Bon.

1. *decentis* (decens.) Say. Trans. Am. Phil. Soc.  
*gagates*. Mels. Cat.; Dej. Sp. Gen. Habitat ubique.
2. \* *coracinus*. *Apterus, niger, nitidus; thorace subquadrato, postice retracto, basi punctato, elytris profundissime striatis*. Long. .57, lat. .215. Habitat Novæ Eboraci rarissime.

Habitus omnino præcedentis, multo major: thorace tamen postice paulo magis retracto, impressionibus omnibus profundis, margine reflexo; minus convexo, basi toto confertissimo subtilius punctato, punctis fere ad medium versus latera extendentibus. In *A. decente* autem thoracis basis sparso subtilissime punctatus est. *Elytra* profundissime striata, striis impunctatis interstitiis angustis, valde convexis, tertio punctis 3 parvis.

3. *sinuatus*. Dej. Sp. Gen. Habitat Novæ Eboraci. Thorace latiore quam in *A. decente*, antice minus rotundato, sed magis ampliato, postice multo minus retracto, basi toto confertim subtilius punctato, sed punctis antice non extendentibus, sicut in *A. coracino*; im-

pressionibus basalibus brevioribus facile dignosci potest species hæcce. Elytra profundius quam in *A. decente* striata, striis obsoletissime subtilissime punctatis.

4. *depressus*. Haldeman Proceed. Ac. Nat. Sc. of Phila.  
*nigerrimus*. Dej. Cat. Habitat NovEboraci.

Præcedentibus simillimus, paulo depressior. Caput impressionibus frontalibus minoribus, profundioribus. Thorax fere sicut in *A. decente*; postico tamen minus retractus, minus convexus, margine tenui reflexo picescente; impressionibus profundis, basalibus brevioribus, confertim minus subtiliter punctatis; disco indistincte rugosus. Elytra profundius striata striis leviter punctatis, interstitiis leviter convexus, tertio punctis 3 majusculis.

5. *corvinus*. Dej. Sp. Gen. Habitat in provinciis australibus.  
 α Supra nigro-piceus, subtus rufo-piceus, pedibus paulo dilutioribus.

6. *deplanatus*. Chaudoir. Bull. de Moscou.

*marginalis*. Haldeman. Proceed. Ac. Nat. Sc. Vol. I. A præcedente vix differt, thorace paulo brevior, postice minus retracto, clytris planioribus, antice magis emarginatis, postice magis oblique, minus profunde sinuatis, ægre cognoscendus. Dubitandum est ne species Haldemaniana ad hanc, vel ad sequentem speciem referri debeat; specimen tamen ab ei receptum ad hanc speciem rito pertinet.

7. \* *marginatus*. *Depressus, niger, nitidus, thorace margine picco late reflexo, clytris striatis punctis 3-minoribus*.  
 Long. .42, lat. .115. Habitat NovEboraci rarius.

*Depressus, niger, nitidus; antennæ nigre, pedes picci. Caput læve, impressionibus profundis. Thorax capite sesqui latiore, latitudine summa paulo brevior, subquadratus, antice emarginatus, angulis anticis subporrectis, apice rotundatis, lateribus usque*



ad medium ampliatis, non rotundatis, ad medium rotundato angulatis, dein retractis, latitudine basali apicalem æquante, margine toto lato valde reflexo, piceo; disco modico deplanatus, lævis; impressionibus omnibus satis profundis, linea longitudinali tenui. *Elytra* depressiuscula, versus apicem leviter sinuata, striata, interstitiis modice convexis, tertio punctis 3 minoribus.

8. \**tenuicollis*. *Gracilis; depressus, niger, nitidus, thorace margine reflexo piceo, elytris tenuiter striatis, punctis tribus minoribus*. Long. .38, lat. .135. Habitat ad cataractam Sanctæ Mariæ, (Sault de Ste. Marie.)

*Gracilis, angustus, depressus, niger, nitidus. Antennæ fere corporis longitudine, attenuatæ, nigrae, articulis 3 glabris. Palpi nigri, apice picei. Caput elongatum. Thorax capite vix latior, latitudine non longior, subquadratus, antice emarginatus angulis obtusis, lateribus leviter rotundato-ampliatis, postice retractis, latitudine basali apicali paulo minore; margine toto laterali late reflexo, piceo; disco modice convexus, levissimus; impressionibus transversis valde profundis, anteriore medio acute angulata, linea longitudinali fortiter impressa, basalibus elongatis, non profundis. Elytra thorace vix sesqui latiora, elongata, subdepressa, subparallela, apice sinuata, tenuiter satis profunde striata, striis obsoletissime punctatis, interstitiis fere planis, tertio punctis 3 minoribus.*

9. *elongatulus*. Dej. Sp. Gen.

*obscuratus*. Chaudoir. Bull. de Moscou. Descriptio ad feminam pertinet, descriptio autem Dejeaniana ad marem. Habitat in provinciis australibus et Nov-Eboraci.

10. *extensicollis*. Say. Trans. Am. Phil. Soc. Habitat ubique.

var. *Lecontei*. Dej. Cat.; LeConte, loc. cit. sup.

11. \**viridis*. *Subcyaneo-viridis nitidus, thorace basi subtiliter punctato, elytris striatis, interstitiis planis, tertio puncto*

*tis duobus majusculis, antennarum articulis tribus, palpis pedibusque ferrugineis.* Long .39, lat. .15.  
Habitat in Indiana ad flumen Ohio.

Depressiusculus, subcyaneo-viridis, nitidus. *Antennæ* fuscæ, articulis 3 primis testaceo-ferrugineis. *Palpi* testacei, labrum piceum. *Caput* læve, impressionibus parvis. *Thorax* capite paulo latior, latitudine summa paulo longior, subquadratus, antice vix emarginatus, angulis anticis subacutis, lateribus leviter rotundatis, pone medium retractis, basi apice angustiore, angulis posticis obtusis, valde rotundatis, margine non reflexo; disco antice modice convexus, basi toto dense minus subtiliter punctatus; impressionibus transversis inconspicuis, linea longitudinali integra, profunda, basalibus profundis, linea brevi basali indistincta notatis, antice obsolete prolongatis. *Elytra* striata, striis subtiliter punctatis, interstitiis latis, accurate planis, tertio punctis 2 pone medium. Subtus niger, pedes cum coxis ferruginei.

12. *decorus*. Say. Trans. Am. Phil. Soc.

α Thorace rufo, lævissimo, elytrorum striis leviter punctatis, interstitiis obsolete punctatis fere lævibus.

*Anchomenus thoracicus*. Dej. Sp. Gen.

β Thorace rufo, lævissimo, elytrorum striis impunctatis, interstitiis subtilius punctatis.

γ Thorace rufo, ad latera levissime sparse punctato, elytrorum striis impunctatis, interstitiis evidenter densius punctatis.

δ Thorace rufo viridi-æreo obscurato, ad latera levissime sparse punctato: elytris læto viridibus, sicut in (γ) notatis.

ε Thorace obscure viridi, ad latera sparse levissime punctato: elytris sicut in (γ).

Species ad libitum varians; habitat ubique; varietates has omnes ad lacus Onondaga littora inveni.

13. \* *obscurus*. *Obscure æneus, thorace deplanato, ad latera obsolete punctato, elytris striatis, interstitiis punctatis,*

*tertio punctis 6 majusculis, antennarum basi, pedibusque obscure ferrugineis.* Long. .34, lat. .14. Habitat ad lacum Onondaga.

Varietatem ( $\epsilon$ ) prioris maxime refert. *Antennae* piceo-nigræ, articulo primo ferrugineo. *Palpi* picei. *Caput* antice attenuatum, postice subtiliter punctulatum, impressionibus frontalibus linearibus, profundis, cum oculorum margine confluentibus. *Thorax* capite sesqui lator, latitudine summa vix brevior, subquadratus, antice leviter emarginatus, angulis anticis obtusis leviter rotundatis, lateribus modice rotundatis et ampliatis, postice leviter retractus, latitudine basali apicalem æquante; subdepressus, ad latera postice parce subtilius punctatus; impressionibus transversis inconspicuis, linea longitudinali tenui, postice abbreviata, basalibus subobliquis, antice minus profundis, linea brevi basali notatis: carina brevissima ad angulum posteriorem, acujus dilata-tione eminentia parva oritur. *Elytra* obscure ænea, viridi marginata, tenuitur profunde striata, striis impunctatis, interstitiis levissime convexis, tertio punctis 6 vel 7 sicut in *A.* decoro positis. Subtus nigro-virescens; pedes picei.

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#### AGONUM. Bon.

1. *octopunctatum*. Fabr. Syst. Eleuth. Habitat ubique.
2. *erythropum*. Kirby-Richardson. Fauna Bor. Am. Habitat ad Mississippi scaturigines et ad Rocky Mountains.
3. *errans*. Say. Trans. Am. Phil. Soc. Habitat ad Rocky Mountains rarius.
4. *cupripenne*. Say. ibid.  
*formosum*. Sturm Cat.  
*metallicum*. Mels. Cat. Habitat ubique.
5. *\*chalcum*. *Robustius, supra æneum nitidum, clytris thorace non latioribus, striatis, interstitiis planis, tertio*

*punctis 3 impressis.* Long. .335, lat. .13. Habitat ad Lacum Superiorem.

Robustius, æneo-nigrum, supra æneum, nitidum. *Caput* læve, antice obtusum, impressionibus non profundis. *Antennæ* et palpi toti nigri. *Thorax* capite plus sesqui latior, latitudine summa paulo brevior, antice profunde emarginatus, angulis posticis obtusissimis valde rotundatis, basi medio leviter emarginato, margine laterali pone medium anguste reflexo: disco leviter convexus; impressionibus transversis inconspicuis, posteriore profundiore, linea longitudinali tenuissima, integra, basalibus modice profundis, antice obsolete prolongatis, punctis paucis indistinctis, lineaque basali externe recurva notatis. *Elytra* thorace non latiora, apice vix sinuata, striata, striis lævissimis, interstitiis accurate planis, tertio punctis 3 majusculis.

6. *nitidulum.* Dej. Sp. Gen. Habitat ad lacum Sabulosam prope Mississippi scaturigines.

7. *cupream.* Dej. Sp. Gen. Habitat ad Cataractam Sanctæ Mariæ.

8. *melanarium.* Dej. Sp. Gen.

*collare.* Say. Trans. Am. Phil. Soc. N. S. Vol. IV.  
(Anchomenus.)

*maurum.* Hald. Proc. Ac. Nat. Sc. of Phila.

*pullatum.* Sturm. Cat. Habitat ubique.

9. *mocrens.* Dej. ibid. Habitat NovEboraci rarius.

10. *Harrisii.* Nigrum, nitidum, thorace subquadrato, antice leviter angustato, angulis posticis rotundatis, elytris tenuiter striatis, striis obsoletissime punctatis, punctisque 3 impressis. Long. .4, lat. .17. Habitat in Massachusetts, a Dom Harris lectum.

Præcedenti simillimum; paulo major, thorace latiore. Totum nigrum, nitidum: *caput* impressionibus frontalibus ad oculorum marginem prolongatis, tenuibus. *Thorax* capite duplo latior, latitudine summa paulo brevior, subquadratus, antice leviter

angustatus, lateribus valde, basi leviter rotundatus, angulis posticis obtusis, modice rotundatis; disco vix convexus, transversim leviter rugosus; impressionibus transversis debilibus, anteriore angulata, paulo distinctiore, linea longitudinali utrinque abbreviata, satis profunda, basalibus magnis, rotundatis, non profundis, punctis paucis impressis. *Elytra* thorace latiora, subparallela apice rotundata, levissime sinuata; striata, striis obsoletissime punctatis; interstitiis levissime convexis, tertio punctis 3 impressis.

A præcede ite differt thorace latiore antice magis angustato, lateribus basique minus rotundatis, angulis posticis minus rotundatis; striis elytrorum inconspicue punctatis, interstitiis minus planatis.

11. *morosum*. Dej. Sp. Gen. Habitat ubique.

12. \**piccum*. *Rufo-piccum, nitidum, capite thoraceque obscuriore, hoc subquadrato, angulis posticis obtusis, rotundatis, elytris profunde striatis, punctisque 3 impressis.* Long. .28 lat. .12, Massachusetts: a Dom. Harris benevole datum.

Agonum piccum. Harris Cat.

*Rufo-piccum nitidum, capite, thorace, antennis, palpisque obscurioribus. Caput* rhomboideum, rugulis paucis inter impressiones frontales et oculos. *Thorax* capite fere duplo latior, latitudine summa paulo brevior, subquadratus, antice paulo angustatus, lateribus valde rotundatus, basi parum rotundatus, angulis posticis valde obtusis, apice leviter rotundatis; disco subplanus, leviter rugosus; margine versus angulos posticos indistincte depresso; impressionibus transversis distinctis, linea longitudinali integra, basalibus latis, non profundis, subtilius rugosis, eminentia parva obsoletissima ad angulum. *Elytra* thorace fere sesqui latiora, transversim modice convexa, apice rotundata, vix sinuata; profundo striata, interstitiis modice convexis, tertio punctis 3 impressis, duobus posticis ad striam secundam sitis. Subtus totum rufo-piccum.

13. **nutans**. Say. Trans. Am. Phil. Soc.

*femoratum*. Mels. Cat.; Dej. Sp. Gen. Habitat in provinciis occidentalibus et ad Rocky Mountains.

14. \* **basale**. *Æneo-nigrum*, supra *æneum nitidum*, thorace *subvirescente*, *elytris profunde striatis*, *punctisque 3 minoribus*, *antennarum articulo primo*, *pedibusque ferrugineis*. Long. .30, lat. .115. Habitat ad Rocky Mountains rarius.

Gracile, æneo-nigrum, supra æneum, nitidum. *Palpi nigri*, *antennæ* *nigræ*, articulo primo ferrugineo. *Caput* antice angustum, impressionibus frontalibus linearibus, profundis. *Thorax* capite paulo latior, latitudine summa vix longior, antice vix emarginatus, angulis deflexis, lateribus rotundatus, leviter ampliat, postice retractus, latitudine basali apicali vix angustior, basi utrinque obliquo, angulis posticis obtusis, valde rotundatis; disco convexus, lævis; impressionibus transversis modice distinctis, linea longitudinali postice paulo abbreviata, basalibus sat magnis, profundis, toto cum basi subtilius minus dense punctatis, purpureo-micantibus; tuberculo parvo ad angulum thoracis extimum inconspicuo. *Elytra* profunde striata, interstitiis convexis, tertio punctis 3 minoribus. *Pedes* cum coxis ferruginei.

15. **excavatum**. Dej. Sp. Gen. Habitat ubique rarius.

16. **striatopunctatum**. Dej. ibid. Habitat in provinciis australibus rarius.

17. **aeruginosum**. Dej. ibid. Habitat ubique rarius.

18. **placidum**. Say. Trans. Am. Phil. Soc. Habitat ad lacum Superiorem communius, NovEboracum rarius.

Trochanteres antici et intermedii plerumque picci, raro obscure rubri; thorax latus, ita ut transversus fere videtur; *elytra* tenuiter striata, interstitio tertio punctis 3 vel 4 minoribus.

19. **bembidioides**. Kirdy loc. cit. sup. (Sericoda.)

Insectum hoc a cel. Dom. Kirby sub nomine Sericoda bembidoide descriptum, in hoc genere rite adscribendum est. In spe-



cimine Kirbyano, non solum descriptione, see etiam iconē accuratē inspecta, palpus maxillaris (a Kirby 5-articulatus habitus) mutilatus videtur. Specimina quatuor, quæ ad Lacum Superiorem obtinui, characteribus omnibus hujus generis gaudent.

20. *ferreum*. Haldeman. Proceed. Ac. Nat. Sc. of Phila.

*Viridescens-nigrum, nitidum, elytris profunde striatis, striis antice crenatis, antennarum basi, tibiis tarsisque ferrugineo-pallidis.* Long. '30, lat. '125. Habitat NovEboraci rarius.

Nigro-virescens nitidum. *Antennæ* nigrae, articulis tribus primis ferrugineis. *Palpi* picci. *Caput* læve, impressionibus linearibus, profundis, curvatis. *Thorax* subrotundatus, latitudine summa vix longior, postice leviter retractus, angulis posticis obtusis, rotundatis, basi levissime emarginato; disco modico convexus, basi toto dense minus subtiliter punctatus; impressionibus transversis distinctis sed non profundis, linea longitudinali bene notata, antice paulo abbreviata, basalibus valde profundis. *Elytra* convexa, apice leviter sinuata; profunde striata, striis antice crenatis, postice impunctatis, minus profundis; interstitiis convexis. *Femora* nigro-picea, *tibiae* et *tarsi* ferrugineo-pallidi.

21. \* *retractum*. Nigrum, nitidum, thorace subrotundato, postice retracto, margine laterali postice reflexo, elytris profunde striatis, punctis tribus impressis, antennarum basi, pedibusque ferrugineis. Long. '255, lat. '105. Habitat ad Lacum Superiorem rarius.

Gracile, nigrum, nitidum. *Antennæ* fuscae, basi ferruginæ. *Caput* læve, impressionibus linearibus, cum oculorum margine confluentibus. *Thorax* latitudine summa vix longior, subrotundatus, antice emarginatus, angulis anticis obtusis, lateribus rotundatus, pone medium leviter retractus, angulis posticis obtusis valde rotundatis, latitudine basali apicali minore; margine laterali, pone medium tenuiter reflexo; disco leviter convexus; impressione transversa anterioro vix conspicua, posteriore recta, basalibus longis, linearibus, satis impressis. *Elytra* latiuscula,

apice vix sinuata, profunde striata, striis omnino lævibus, interstitiis modice convexis, tertio punctis 3 minoribus. *Pedes* cum coxis rufo-ferrugineis.

22. \*decipiens.

*affine*. Dej. Cat. *Nigrum subvirescens, thorace postice levissime retracto, impressionibus basalibus foveoliformibus, elytris tenuiter profunde striatis, punctis quinque impressis, pedibus dilute piccis*. Long. .27, lat. .11. Habitat in Georgia rarius.

*Nigrum*, subvirescens, nitidum. *Antennæ* omnino nigræ, palpi picci. *Caput* læve, impressionibus linearibus, cum oculorum margine confluentibus. *Thorax* subrotundatus, antice vix emarginatus, postice subangustatus, angulis anticis deflexis, posticis valde obtusis, rotundatisque, latitudine basali apicali minore; disco convexus, impressionibus transversis levibus, posteriore evidentiore, linea longitudinali integra, profunda, basalibus rotundatis, profundis, linea brevissima ad basin non extendente notatis. *Elytra* tenuiter profunde striata, striis antice leviter punctulatis, interstitiis levissime convexis, tertio punctis 5 impressis. *Pedes* dilute picci.

23. *lenum*. Dej. Sp. Gen.

var. *picipenne*. Kirby. loc. cit. sup. Habitat ad Lacum Superiorem.

24. *sordens*. Kirby. ibid. Habitat cum priore.

25. \**nigriceps*. *Elongatum, testaceum, capite nigro, thorace medio fusco-vittato, elytris subtilius minus profunde striatis*. Long. .25, lat. .10. Habitat ad Lacum Superiorem rarius.

*Elongatum*, depressum, habitu fere *Demetriæ* cujusdam, testaceum, sub-nitidum. *Antennæ* fuscae basi testaceæ. *Caput* supra et subus nigro-virescens, impressionibus postice coeuntibus. Palpi ferruginei, apice picci. *Thorax* subquadratus, latitudine summa longior, antice et postice truncatus, lateribus leviter rotundatis, angulis posticis obtusis rotundatis; deplanatus, subtili-

ter transverse rugosus, testaceus, medio vitta lata fuscescendo; impressionibus transversis distinctis, linea longitudinali tenuissima, antice abbreviata, basalibus vix conspicuis. *Elytra* apice vix sinuata, subtiliter minus profunde striata, stria suturali profundiore; pallido testacea, sutura leviter infuscata.

26. *luctuosum*. Dej. Sp. Gen. Habitat ubique: variat nigro-piceum, pedibus rufo-piceis.

27. *punctiforme*. Say. Trans. Am. Phil. Soc. Habitat ubique rarius.

*rufipes*. Dej. Sp. Gen.

28. *limbatum*. Say. Trans. Am. Phil. Soc.

*palliatum*. Dej. Sp. Gen. Habitat in provinciis mediis rarius, et in australibus.

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#### OLISTHOPUS. Dej.

1. *parmatus*. Say. Trans. Am. Phil. Soc. Vol. II. (Feronia.)

Habitat in provinciis mediis, et occidentalibus rarius.

2. \**micans*. *Piceus*, *nitidus*, *thorace rotundato*, *antice emarginato*, *elytris cyaneo-micantibus*, *tenuiter striatis*, *punctis 3 impressis*, *antennarum basi pedibusque testaceis*. Long. .19, lat. .09. Habitat in Georgia rarissime.

*Piceus*, *nitidus*. *Antennae* basi pallidae, *palpi* picei apice testacei. *Caput* latum, antice subacutum, impressionibus vix distinctis; puncto majusculo ad oculorum marginem superiorem. *Thorax* latitudine summa sesqui fere brevior, antice emarginatus, lateribus cum basi valde rotundatis, angulis posticis fere nullis; disco levissime convexus; impressionibus transversis fere oblitteratis, linea longitudinali profunda, basalibus parvis, rotundatis, vix conspicuis. *Elytra* rotundata, apice fere truncata, thorace latiora, latitudine summa vix sesqui longiora, tenuiter striata, tertia punctis 3 majusculis, interstitiis planissimis; picea, margine dilutiore, cyaneo-micantia. *Epiptera*, *pedesque* testacei.

## PLATYDERUS. Stephens.

1. **erythropus**. Dej. (Feronia) Sp. Gen.

*nitidus*. Kirby. F. B.—A. Vol. IV. Habitat ubique rarius; mento lato dentato, dente brevissimo, obtuse emarginato ab Argutore distinguendus.

## PÆCILUS. Bon.

1. **chalcites**. Say. Trans. Am. Phil. Soc. Habitat ubique satis commune.2. \***cyaneus**. *Cyaneus, elytris nitore viridi micantibus, thorace basi utrinque bistriato, stria exteriore breviori, elytris profunde striatis, stria tertia punctis duobus majusculis, antennis pedibusque nigris*. Long. .445, lat. .18. Habitat ad Rocky Mountains.

*Cyaneus, nitidus, elytris nitore viridi micantibus. Antennæ* nigrae, articulis duobus primis subtus piceis. *Palpi* nigri. *Caput* parum convexum, oculis minusculis vix exstantibus, laeve, impressionibus frontalibus levibus, linearibus, brevibus. *Thorax* capite duplo fere latior, latitudine summa sesqui fere brevior, subquadratus, antice leviter angustatus, vix emarginatus, angulis anticis deflexis, lateribus valde rotundatis; modico convexus, postice subdepressus; impressionibus transversis inconspicuis, linea longitudinali tenui, integra; basalibus geminis, linearibus, profundis, exteriore angulo approximata, breviori, basi toto levissimo. *Elytra* subparallela, parum convexa, profunde striata, striis leviter punctatis, striola inter primam et secundam postice valde abbreviata, cum prima non confluenta, interstitiis subplanis tertio punctis 2 majusculis pone medium sitis. Subtus niger, nitidus.

OBS.—*P. chalciti* simillimus, thoraco tamen postice retracto, basi impunctato, interstitiis elytralibus planiusculis, striis minus punctatis, antennarumque basi nigro-piceo facile distinguendus.

3. **lucublandus**. Say. loc. cit. sup.

Abundat ubique. Species ad libitum varians, non modo colore,

æneo, viridiæneo, vel nigro, sed etiam thoracis basis punctatione, quæ sæpe vix conspicua est; pedes nonnunquam castanei sunt. Semper tamen antennarum articuli tres basales ferruginei, et palpi picei adsunt.

4. \* *dilatatus*. *Latior, minus convexus, æneo-virescens, thorace basi subtilius punctato, lateribus modice depresso, elytris angustius striatis, interstitio tertio punctis tribus minoribus, antennarum articulis tribus ferrugineis.*  
Long. .45, lat. .205. Habitat Novæboraci rarissime.

*P. lucublando* simillimus, multo latior, et minus convexus, *Æneo-virescens*, subnitidus. *Caput* paulo latius, minute punctulatum et rugulosum, impressionibus frontalibus minus profundis, indistinctis. *Palpi* picei, basi ferruginei. *Antennæ* piceæ, articulis tribus primis ferrugineis. *Thorax* capite duplo latior, latitudine summa paulo brevior, antice modice angustatus, angulis anticis apice non rotundatis, lateribus valde rotundatus, basi recte truncatus, angulis posticis obtusis, rotundatis, margine pone medium modice explanato, depresso, disco leviter convexus, transverso rugulosus; basi præsertim ad latera subtilius minus dense punctato, impressione transversa anteriore angulata, subindistincta, posteriore nulla, linea longitudinali tenui, integra, basalibus geminis, linearibus, exteriori brevissima fovecoliformi, interiore profunda. *Elytra* thorace non latiora, subparallela, subdepressa, striis angustioribus, interstitiis planiusculis, tertio punctis 3 minoribus. Subtus niger, pedes picco-castanei.

5. *castanipes*. Kirby. Richardson Fauna Bor. Am.

Habitat ad Rocky Mountains. *P. lucublando* simillimus, nigro-cyanescens, pedibus, palpis, antennarumque articulis tribus primis rufo-castaneis; thorace longitudine non latiore, antice minus angustato, lateribus minus rotundato, angulis posticis fere rectis, vix rotundatis, margine explanato paulo latiore, impressionibus basalibus minus profundis, fere lævibus, dignoscitur.

6. \* *bicolor*. *Cyanescens, subnitidus, thorace margine explanato, basi obsolete punctato, utrinque uniimpresso, angulis posticis valde rotundatis, antennarum basi pedi-*

*busque ferrugineis.* Long. 46, lat. 18. Habitat ad Rocky Mountains.

Nigro-cyanescens, subnitidus. *Antennæ* fuscae, articulis tribus primis ferrugineis. *Palpi* rufo-picei, apice picei. *Caput* subtilissime rugosum, impressionibus frontalibus parvis, brevissimis, vix distinctis. *Thorax* capite duplo latior, latitudine summa vix brevior, antice leviter emarginatus et angustatus, angulis anticis valde obtusis, lateribus valde rotundatus, basi parum angustatus, lateribus postice late deplanatus, basi fere recto, angulis posticis obtusis, valde rotundatis; disco modico convexus, basi versus latera, margineque depresso minus dense subtilius punctatus; impressione transversa angulata, vix distincta, posteriore recta, modico notata, basalibus internis latis, brevibus, non profundis, ad basin vix distinctis, externis evanescentibus. *Elytra* profunde striata, striis subtiliter punctatis, interstitiis modico convexis, tertio punctis 4 impressis. Subtus niger, *pedes* cum coxis anticis ferruginei, coxæ intermediæ et posticæ piceo-nigræ.

7. *convexicollis*. Say. Trans. Am. Phil. Soc. Vol. II.

*Nigro-virescens, nitidissimus, thorace impressionibus transversis, basalibusque profundis, his vix punctatis, margine laterali tenui deplanato, elytris æneis, striis leviter punctatis, punctisque tribus impressis; antennarum basi ferrugineo, palpis pedibusque nigro-piceis.* Long. 35, lat. 14. Habitat ad Cataractam Sanctæ Mariæ rarius.

Insectum elegans: supra nigro-virescens, elytris æneis, nitidissimis, subtus niger. *Antennæ* obscuræ, articulis tribus basalibus pallide ferrugineis, *palpi* picei. *Caput* læve impressionibus parvis, brevissimis, satis profundis. *Thorax* capite vix duplo latior, antice leviter angustatus, profunde emarginatus, angulis anticis apice non rotundatis, lateribus modice rotundatus, præsertim ante medium, postice levissime retractus, margine angustiusculo, pone medium explanato, basi fere recto, angulis posticis leviter obtusis, apice non rotundatis; disco convexus lævissimus, punctis paucis ad basin indistinctis; impressionibus trans



versis profundis, linea longitudinali bene notata, basalibus geminis profundis, exteriore brevior. *Elytra* thorace non latiora, subparallela, aenea, nitida; profunde striata, striis leviter punctatis, interstitiis modice convexis, tertio punctis 3 majoribus. *Pedes* nigro-picei.

8. \**scitulus*. *Sublongatus. subdepressus, læte viridiæneus, vel purpureus, nitidissimus; thorace postice retracto, basi utrinque bistriato, elytris profunde striatis, striis leviter punctatis, punctisque duobus impressis, antennarum articulis duobus ferrugineis.* Long. .315, lat. .125. Habitat ad fluminis Platte furcationem.

Species lepida. Angustiusculus subdepressus, læte viridiæneus, raro purpureus, nitore viridi micans, nitidissimus. *Palpi* nigri, articulo ultimo apice picco. *Antennæ* picco-nigræ, articulis duobus primis ferrugineis. *Caput* majusculum, oculis prominulis, impressionibus frontalibus linearibus, profundis, externe curvatis. *Thorax* capite sesqui latior, latitudine summa vix longior, antice non angustatus, leviter emarginatus, angulis subdeflexis, lateribus antice valde rotundatus, postice modico retractus, basi medio levissimo emarginatus, angulis posticis rectis, apice non rotundatis: leviter convexus; impressione transversa anteriore modice profunda, arcuata, posteriore minus distincta, linea longitudinali utrinque abbreviata, profunda, basalibus geminis linearibus, profundis, exteriore margini valde approximata, brevior, interstitio depresso, irregulariter striato (sicut in *Omascis* plerisque. *Elytra* subparallela, disco planiuscula, profunde striata, striis leviter punctatis, interstitiis modice convexis, tertio punctis 2 majusculis pone medium sitis. Subtus niger, tarsis picco-nigris.

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#### OMASEUS. Ziegler.

Genus antennis breviusculis, articulo 1<sup>mo</sup> crassiore; 2<sup>do</sup> rotundato-obconico; 3<sup>io</sup> duplo fere longiore sensim, valde clavato; 4<sup>to</sup> sesqui brevior, sensim clavato; reliquis æqualibus, subquad-

ratis, crassitie sesqui longioribus, leviter compressis, ultimo paulo longiore, apice acuto: menti dente obtuse emarginato, distinctum.

1. *orinomum*. Leach. Kirby. F. B.-A. Vol. IV. Habitat ad Lacum Superiorem.

### ADELOSIA. Stephens.

#### OMASEUS. p. Dej.

*Antennæ* breves, crassiusculæ, caput cum thorace vix excedentes; articulo 1<sup>mo</sup> crassiore, cylindrico; 2<sup>do</sup> brevi, obconico, crassitie vix longiore: 3<sup>io</sup> plus duplo longiore, clavato, basi compresso; 4<sup>to</sup> sesqui brevior, inferne sinuato, a medio subito clavato; reliquis æqualibus, subquadratis, crassitie duplo longioribus, modice compressis, ultimo paulo longiore, apice acuto.

*Thorax* subquadratus, postice angustatus, lateribus brevissime sinuatis, basi utrinque uniimpressus; *elytra* stria rudimentali inter 1<sup>am</sup> et 2<sup>adam</sup> sita, longa, distincta; palpi crassiusculi: mentum dente lato, apice leviter emarginato.

Habitus subdepressus, fere Omasei orinomum: distinctus tamen articulo antennarum tertio.

1. *muta*. Say. Am. Phil. Trans., Vol. III. (Feronia.)  
*carbonaria*. Dej. Sp. Gen. Vol. III. (Feronia.)  
*picicornis*. Kirby. F. B.-A. Vol. IV. (Omascus.) Abundat ubique.
2. *morosa*. Dej. Sp. Gen. Habitat NovEboraci: præcedenti simillima; forma paulo angustiore, thorace postice paulo magis retracto, lateribus postice minus sinuatis, basi medio leviter emarginato, ægre cognoscenda.
3. *oblongonotata*. Say. Trans. Am. Phil. Soc. Vol. IV. Habitat ad Lacum Superiorem. Omasco orinomum simillima; thorace tamen postice magis retracto, brevissime, levissimeque sinuato; margine acutius reflexo; elytris paulo minus profundo striatis, distincta.

## STEREOCERUS. Kirby.

OMASEUS. p. auctorum.

Antennæ breves, crassiusculæ, caput cum thorace vix excedentes; articulo 1<sup>mo</sup> brevi, crasso, latitudine vix longiore; 2<sup>do</sup> sesqui brevior, valde obconico, crassitie paulo longiore; 3<sup>io</sup> primum longitudine æquante, basi angusto, sensim valde clavato; 4<sup>to</sup> paulo brevior, inferne plus minusve sinuato, apice incrassato, clavatoque; sequentibus æqualibus, arcte conjunctis, crassitie vix sesqui longioribus, subcompressis; labrum breviusculum; mentum dente longo, apice profunde impresso, non emarginato. Thorax subquadratus, postice retractus, lateribus sinuatis, angulo postico recto, carina brevi instructo; basi utrinque bistriatus; elytra stria rudimentali inter primam et secundam brevissima; interstitio tertio 3-punctato.

§ 1. Habitus subdepressus, Adelosizæ similis.

1. *corvinus*. Dej. Sp. Gen. Habitat ubique.

2. *caudicalis*. Say. Trans. Am. Phil. Soc. Vol. II.

*nigrita*. Kirby. F. B.-A. Vol. IV. (Omaseus.) Habitat NovEboraci, et ad Lacum Superiorem; antennarum articuli, basi paulo magis compressi, latitudinaliter visi, attenuati videntur, et sic a Sayo descripti sunt; cum descriptione *O. nigritæ* Paykulli ægre convenit hæc species.

3. *luctuosus*. Dej. Sp. Gen. Habitat cum priore. S. caudicalem maxime refert, paulo minor, thorace postice minus retracto, sinuatoque, carina paulo longiore, impressioneque exteriori distinctiore, agnoscendus.

§ 2. Corpus apterum, subcylindricum, capite magno, Cophosum referens, thorace lateribus vix rotundatis, postice retractis, vix sinuatis, carina basali vix conspicua; mentum dente latiore, apice leviter truncato; mandibulæ elongatæ, porrectæ; elytris interstitio tertio impunctato.

4. \**grandiceps*. *Niger nitidus*, thorace planiusculo, basi biimpresso, impressione exteriori punctiformi, elytris

*profunde striatis, striis punctatis.* Long. .550, lat. .185. Habitat NovEboraci rarissime.

*Niger*, nitidus : *caput* magnum, antice subacutum, linea transversa tonui inter antennis; impressionibus parvis profundis; oculis vix prominulis : *labrum* quadratum, planum, piccum; *palpi* rufo-picei; *antennæ* obscuriores. *Thorax* capite vix latior, latitudine summa non longior, antice posticeque truncatus, lateribus vix rotundatis, postico retractis, levissimeque sinuatis, angulis posticis minime rotundatis : disco leviter convexus; impressione transversa anteriore magna, angulata, medio indistincto duplicata, non profunda : posteriore basi approximata, linea longitudinali utrinque abbreviata, profunda : basalibus latis, lævibus, stria leviter recurvata, punctoque oblongo externo notatis, carina obsoletissima inter punctum et marginem. *Elytra* thorace vix latiora, plus duplo longiora, parallela, convexa, profunde striata, striis punctatis, rudimentali vix conspicua.

*Feronia rostrata* (Newman) hanc speciem, appropinquat, et forte in hoc genere adscribenda est : differt tamen striis elytrali bus impunctatis.

#### ARGUTOR. Megerle.

*Antennæ* filiformes; mentum dente obtuso, nonnunquam vix conspicuo, apico nec impresso, nec emarginato.

§ 1. Thoraco postice retracto; corpus subcylindricum, subconvexum.

1. *patruclis*. Dej. Sp. Gen. Habitat in provinciis mediis.

2. *bicolor*. Kirby. F. B.-A. Habitat NovEboraci rarius.

§ 2. Thoraco postice vix retracto; corpus subdepressum.

† pedes rufo-picei.

3. *coloris*. Dej. Sp. Gen.

*contaminatus*. Mels. Cat. Habitat ubique rarissime.

4. *\*piciventris*. *Niger nitidus*, thorace subquadrato, postice utrinque lineariter impresso, elytris striato punctatis, antennarum basi, palpis pedibusque rufis. Long. .22, lat. .08. Habitat in Georgia.

Habitu fere *A. recti* at sesqui minor. Niger, nitidus. *Antennæ* brunneæ, basi rufæ, *palpi* rufi. *Caput* læve, impressionibus frontalibus brevibus, profundioribus. *Thorax* subquadratus, postice non angustatus, antice vix emarginatus, angulis, leviter deflexis, lateribus minus rotundatus, angulis posticis paulo explanatis, leviter obtusis, apice vix rotundatis; disco leviter convexus, postice subplanus: impressionibus transversis modice distinctis, linea longitudinali profunda, integra, basalibus linearibus, minus profundis. *Elytra* cyaneo-micantia; profunde striata, stria rudimentali nulla, striis punctatis, interstitiis parum convexis, tertio puncto impresso. Subtus piceus, pedes dilute rufo-picei.

5. *rectus*. Say. Trans. Am. Phil. Soc. Vol. II. (Feronia.)

*relox*. Dej. Sp. Gen. Habitat ubique: pedibus nonnunquam piceis variat.

†† pedes nigro-picei.

6. *agilis*. Dej. Sp. Gen.

*femoratus*. Kirby. F. B.-A. Vol. IV. Habitat ubique.

7. \**brevicollis*. Niger nitidissimus, thorace latiore, antice levissime emarginato, angulis deflexis, vix rotundatis, lateribus antice valde rotundato, postice levissime retracto, basi recto, angulis posticis leviter explanatis, fere rectis, apice non rotundatis; disco antice modico convexo, postice subplano; impressionibus transversis vix distinctis, linea longitudinali utrinque paulo abbreviata, basalibus profundis, punctis paucis notatis; elytris viridi cyaneoque micantibus, profunde striatis, striis subtilissime punctatis, interstitiis convexis, tertio puncto impresso; antennarum articulo primo, palpisque ferrugineis, his apice piceis; pedibus nigris. Long. .41, lat. .175. Habitat in provinciis australibus, et NovEboraci rarius.

8. *minor*. Chaudoir loc. cit. sup. (Megalostylus.\*) Niger nitidus; thorace paulo angustiore quam in præcedente, antice leviter emarginato, angulis anticis deflexis, apice non rotundatis,

\* *Megalostylus*, genus Curculionidum, conf. Schön. Gen. et Sp. Curcul. Vol. VI.

lateribus modice rotundato, postice levissime angustato, angulis posticis obtusis, apice non rotundatis, modice deplanatis; disco vix convexo, postice subplano; linea longitudinali tenuissima, impressionibus transversis fere obsoletis, posteriore paulo evidentiore; basalibus latioribus, brevioribus, profundis, punctis nonnullis obsoletis: elytris paulo latioribus, convexioribus, subparallelis, lateribus perparum rotundatis, profunde striatis, striis levissime punctatis, interstitiis modice convexis, tertio puncto impresso: antennarum articulis tribus basalibus palpisque ferrugineis, his apice piceis; femoribus nigro-piceis, tibiis, tarsisque brunneis. Long. .355, lat. .15.

Habitat Novi Aureliani a Dom. Guex benevole datus.

9. *erraticus*. Dej. Sp. Gen. Præcedente paulo angustior, niger nitidissimus; thorace antice levissime emarginato, angulis anticis magis deflexis, lateribus antice modice rotundatis, postice levissime sinuatis, retractisque, basi fere recto, angulis posticis accurate rectis, apice non rotundatis, minus explanatis; disco antice modice convexo, postice subplano; impressionibus transversis fere obsoletis, posteriore evidentiore, linea longitudinali profunda, postice abbreviata, basalibus profundis, longioribus, punctis paucis minus subtilibus notatis, elytris subparallelis minus convexis, cyaneo micantibus, profunde striatis, striis obsoletius punctatis, interstitiis vix convexis, tertio puncto impresso; antennis nigris, articulo primo picescente, palpis brunneo-piceis, pedibus nigro-piceis, tarsis brunneis. Long. .39, lat. .15. Habitat in provinciis australibus.

10. \* *nitidulus*. Staturâ omnino præcedentis, niger nitidissimus; thorace latitudine summa paulo brevior, antice emarginato, angulis anticis vix deflexis, modico rotundatis, lateribus rotundato, postice leviter retracto (non sinuato), basi medio levissime emarginato, angulis posticis minus explanatis, obtusis, apice non rotundatis; disco antice levissime convexo, postice subplano; linea longitudinali tenuissima, impressione transversa anteriore omnino oblitterata, posteriore distincta, basalibus longioribus, linearibus, modice profundis, parce minus subtiliter punc-



tatis, elytris cyaneo-micantibus, subparallelis, minus convexis, striis profundis, impunctatis, interstitiis fere planis, tertio puncto impresso; antennis brunneis, basi ferrugineis; palpis ferrugineis; femoribus piceis, tibiis tarsisque obscure ferrugineis. Long. 37, lat. 14. Habitat in provinciis australibus.

††† Thorace rotundato retracto, angulis posticis obtusis; pedibus saturate rufis.

11. *lucidulus*. Dej. Sp. Gen. Niger nitidissimus; thorace angulis anticis sub-deflexis, vix rotundatis, lateribus valde rotundato, postice leviter retracto, angulis posticis obtusis, valde rotundatis, impressione transversa anteriore profunda, angulata, linea longitudinali tenui, antice abbreviata, basalibus profundis, parce punctatis; elytris profunde striato-punctatis, cyaneo-micantibus, interstitiis modice convexis, tertio puncto impresso; antennarum basi, palpis, pedibusque ferrugineis. Long. 48, lat. 18. Habitat in provinciis australibus.

12. *laticollis*. Chaudoir. Bulletin Soc. Imp. des Nat. de Moscou, No. IV. (Megalostylus). Niger nitidissimus, thorace paulo latiore, angulis anticis deflexis, rotundatis, lateribus minus rotundato, postice non retracto, angulis posticis minus rotundatis, impressione transversa anteriore margini approximata, vix angulata, basalibus minus profundis, obsolete parce punctatis, linea longitudinali antice paulo abbreviata, tenui; elytris cyaneo-micantibus, profunde striato-punctatis, interstitiis modice convexis, tertio puncto impresso; antennarum basi, palpis pedibusque ferrugineis; tibiis posticis maris incurvatis. Long. 44, lat. 175. Habitat in provinciis australibus.

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PIESMUS.\* nov. gen.

Antennæ filiformes; palpi crassiusculi, articulo penultimo basi attenuato, ultimo cylindrico truncato non longiore, mentum dente longo, obtuso, integerrimo, apice leviter impresso. Thorax subquadratus, postice retractus, lateribus rotundatis, margine

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\* Α πιεζω, *premo*, quasi corpore depresso.

latiusculo reflexo, basi late impressus. Elytra profunde striata, stria rudimentali longiuscula, inter 1nam et 2dam sita; apice rotundata, leviter sinuata. Habitus depressus.

NOTA.—Maxillæ tenues, elongatæ, apice acute incurvatæ, intus sparse ciliatæ.

1. *submarginatus*. Say. Trans. Am. Phil. Soc. Vol. II. Dej. Sp. Gen. (Feronia.) Habitat in provinciis australibus.

### LYPERUS. Chaudoir.

Antennæ filiformes; palpi tenues, articulo ultimo cylindrico, minime ovali, præcedente paulo longiore; mentum dente magno, apice late profundeque excavato inflexoque, obtuse emarginato. Thorax subquadratus, lateribus rotundatis, postice brevissime sinuatis, leviter retractis: margine reflexo; basi biimpressus, impressione exteriori brevissima, punctiformi. Elytra thorace paulo latiora apice rotundata, vix sinuata, stria rudimentali longiuscula, cum prima confluenta, interstitio tertio 3-punctato. Habitus depressus.

NOTA.—Maxillæ latiusculæ, apice valde rotundato-incurvatæ, intus dense ciliatæ.

1. \**Haldemanni*. *Depressus, subelongatus, niger nitidus, elytris opaciusculis, fere planis, striis minus profundis.* Long. '87, lat. '31. Habitat in Alabama, a Dom. Haldeman amico datus.

*L. tartaricum* maxime refert, sed magis depressus. *Caput* omnino sicut in *L. tartarico*. *Thorax* postice magis retractus, lateribus magis sinuatis, angulis posticis accurate rectis, impressione basali paulo profundiore, punctis paucis obsoletis: stria longiore, postice obliqua; impressionibus reliquis sicut in *L. tartarico*. *Elytra* fere plana, opaciuscula, apice rotundata, obsoletissime sinuata, tenuiter profunde striata; striis lævissimis; interstitiis vix convexis.

2. *tartaricus*. Say. Trans. Am. Phil. Soc. Vol. II. (Feronia.) *complanatus*. Dej. Sp. Gen. (Feronia.) Habitat in provinciis australibus sat frequens.

3. \* *scrutator*. *Niger pernitidus*; *thoracis margine non incrassato*; *elytris parallelis profunde striatis, striis levissimis, postice minus impressis*. Long. .612, lat. .23. Habitat in provinciis australibus.

Præcedenti simillimus, at sesqui minor. *Niger pernitidus*; *caput* omnino sicut in *L. tartarico*; *Thorax* antice paulo latior, postice magis retractus, lateribus minus subito sinuatis, margine postice non incrassato; impressionibus fere sicut in *L. tartarico*, basalibus profundioribus, obsolete subtilius punctatis, brevius et minus profunde striatis, spatio inter striam et marginem reflexum depresso (in *L. tartarico* convexo). *Elytra* magis parallela apice magis sinuata, profunde striata, striis levissimis, versus apicem minus impressis, interstitiis leviter convexis.

4. *acutangulus*. Chaudoir, Bull. de la Soc. des Nat. de Moscou, 1843. Habitat in provinciis occidentalibus.

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#### FERONIA. Lat.

Antennæ filiformes, subtenuæ, articulo 1<sup>mo</sup> crassiore, cylindrico; 2<sup>do</sup> duplo brevior, subcylindrico; 3<sup>io</sup> sesqui, vel etiam duplo longior, apice vix clavato; 4<sup>to</sup> et sequentibus ei æqualibus (in *Platysmate* vix conspicue brevioribus) levissime obconicis, leviter compressis, ultimo paulo longior, apice subacuto. Mentum dente lato, longo, versus apicem profunde excavato-impresso, apice plus minusve emarginato. Habitus varius. Palpi externi articulo penultimo basi attenuato; ultimo nunc paulo longior, nunc brevior, in omnibus fere cylindrico, apice rotundato-truncato.

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- § 1. Corpus ovale; thorace basi elytra æquante, basi utrinque biimpresso, margine tenui reflexo: elytris stria prima basi obliqua, unacum secundâ oriente.

#### ABAX. Bonelli.

1. *striata*. Dej. Sp. Gen. Habitat in provinciis australibus, a Dom. Haldeman amice data-

2. **permunda**. Say. Trans. Am. Phil. Soc. Vol. IV. Habitat ad St. Louis.
3. \***quadricollis**. *Angustior, parallela, thorace quadrato, antice vix angustato, transversim leviter rugoso, margine valde angusto, basi utrinque longe profundeque bistriato, elytris profunde striatis, striis obsolete punctatis, stria rudimentali fere nulla, interstitio 7<sup>mo</sup> leviter elevato*. Long. .6, lat. .2. Habitat in Pennsylvania, a Dom. Melsheimer benevole data.

*F. striola* Europæ valde refert, sed minor et angustior, thorace antice vix angustato, basi impunctato, profunde bistriato, spatio inter striam anteriorem et marginem elevato, fere carinata; striaque elytrorum abbreviata, obsoleteque facile distinguenda hæc species.

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- § 2. Antennis breviusculis, valde compressis, thorace lateribus valde rotundatis, basi subito constricto, medio leviter emarginato, angulis posticis rectis, minime rotundatis, basi utrinque biimpressa, acuteque carinata; elytrorum stria abbreviata, inter 1<sup>am</sup> et 2<sup>dam</sup> sita, brevissima, sæpe vix conspicua.

**MOLOPS.** Bonelli.

1. \***colossus**. *Nigra nitida, thorace antice paulo angustato, lateribus valde rotundato, postice subito constricto, basi obsolete rugose-punctato, elytris striato-punctatis, punctoque impresso*. Long. .77, lat. .28. Habitat in Missouri.

*Nigra, nitida; caput breviusculum, linea transversa inter antennas valde profunda; impressionibus frontalibus linearibus, profundis, antice paulo abbreviatis. Thorax capite duplo latior, latitudine paulo brevior, antice paulo angustato, rotundato-emarginato, angulis subacutis, lateribus valde rotundatis, ad basin subito constrictis, sinuatisque; disco minus convexus; linea antica arcuata, margini approximata, distincta, impressione anteriore transversa vix distincta, posteriore modice profunda, linea longi-*

tudinali profunda, utrinque abbreviata, basalibus profundis, rugose-punctatis, profunde bistriatis, striis subæqualibus, interiore paulo longiore. *Elytra* ovalia, lateribus leviter rotundatis, postice rotundata, vix sinuata, basi profunde impressa, leviter contracta, humeris distinctis; striato-punctata, striis postice levioribus, stria rudimentali punctiformi, interstitiis levissime convexis, tertio unipunctato.

2. \* *substriata*. *Latiuscula*, *nigra nitida*, *thorace postice valde constricto*, *impressionibus profundis*, *impunctatis*, *exteriore brevior*; *elytris tenu* *striato-punctatis*, *striis externis obsoletis*. Long. .57, lat. .21. Habitat ad Rocky Mountains.

*Latiuscula*; *mandibulæ* profunde striatæ. *Caput* linea transversa profunda, impressionibus frontalibus linearibus, profundis. *Thorax* capite vix duplo latior, latitudine brevior, antice vix emarginatus, lateribus valde rotundatis, postice valde coarctatis, minus sinuatis; disco minus convexus; impressione anteriore linea arcuata valde profunda, posteriore valde profunda, linea longitudinali forti, antice paulo abbreviata, basalibus profundis, impunctatis, linea interiore longa, curvata, cum exteriore brevi postice connexa; carina valde abbreviata. *Elytra* thorace vix latiora, planiuscula, apice attenuato-rotundata, humeris satis distinctis, basi leviter impressa; tenuiter striato-punctata, striis versus apicem et ad latera obsoletis, 7<sup>ma</sup> et 8<sup>va</sup> fere oblitteratis; interstitiis planis; 3<sup>io</sup> unipunctato. *Antennæ*, palpi, pedesque picei.

3. *constricta*. *Nigra nitidu*, *thorace linea transversa antica*; *elytris profunde striatis*, *striis punctatis*, *punctoque impresso*. Long. .5, lat. .17. Habitat ad Rocky Mountains.

*F. constricta*, Say; Jour. Ac. Nat. Sc., Vol. III.

Præcedente angustior et convexior. *Mandibulæ* striatæ. *Caput* in mare majusculum, in fœmina mediocre, linea transversa tenui, impressionibus frontalibus rectis, profundis, lineari-

bus. *Thorax* capite maris vix sesqui latior, feminae fere duplo latior, latitudine paulo brevior, antice vix emarginatus, lateribus magis rotundatis, postice subito magis coarctatus, latitudine basali apicalis dimidium vix æquante; disco convexiusculus, transverse leviter rugosus; impressione transversa anteriore linea valde profunda, medio obtuse leviter angulata, posteriore valde impressa, linea longitudinali forti, antice abbreviata, basalibus omnino sicut in *F. substriata*. *Elytra* thorace vix latiora, latitudine sesqui longiora, humeris rotundatis, satis distinctis, apice attenuato-rotundata, basi vix impressa; profunde striata, striis distincte punctatis, versus apicem minus profundis; interstitiis subplanis, 3io unipunctato. *Palpi*, antennæ, pedesque picei.

4. \* *ovipennis*. *Longiuscula*, postice subattenuata, nigra nitida; thorace linea antica tenui distincta, lateribus minus rotundato, postice valde coarctato; elytris profunde striatis, striis obsolete punctatis, punctoque impresso. Long. .53, lat. .175. Habitat etiam ad Rocky Mountains.

Præcedente angustior: nigra, nitida. *Mandibulæ* striatæ. *Caput* majusculum, linea transversa tenui, impressionibus frontibus rectis, profundis. *Thorax* latitudine paulo brevior, cordatus, antice vix emarginatus, lateribus paulo minus rotundatis, postice valde retractis, paulo minus subito sinuatis; disco convexus, transverse leviter rugosus, impressione transversa anteriore nulla, vel vix conspicua, linea arcuata tenui, margini approximata, profunda; posteriore profundissima, linea longitudinali antice abbreviata, valde profunda, basalibus profundis, stria interiore longiore, postice cum exteriori arcuatim connexa. *Elytra* ovalia, latitudine plus sesqui longiora, thorace non latiora, versus apicem subattenuata, humeris modice distinctis, basi vix impressa; profunde striata, striis versus apicem minus impressis, in mare punctatis, in femina fere lævibus, interstitiis subplanis, tertio unipunctato; antennæ, palpi, et pedes picei.

5. \* *incisa*. *Longiuscula*, nigra nitida, postice subattenuata;



*thorace linea tenui antica, basi impunctato, striis brevioribus: clytris humeris fere nullis, basi profunde impressis, profunde striatis, interstitio 3<sup>io</sup> bipunctato.*

Long. .51, lat. .16. Habitat ad Rocky Mountains.

Præcedenti simillima, nigra nitida. *Caput* subelongatum, linea transversa profunda, impressionibus frontalibus rectis, profundis. *Mandibulæ* glabræ. *Thorax* forma omnino sicut in *F. ovipenni*, linea antica tenui arcuata, margini approximata, impressione transversa posteriore valde profunda, linea longitudinali tenui, profunda, antice paulo abbreviata, basalibus profundis, lævibus, fovea oblonga, parva, profunda, striaque brevi externa notatis, carina brevi acuta. *Elytra* elongato-ovalia, latitudine thoracem vix æquantia, thorace duplo longiora, apice rotundato-attenuata, basi profunde impressa; tenue profunde striata, striis versus basin inconspicue punctatis, interstitiis leviter convexis, 3<sup>io</sup> punctis duobus; pedes picci.

Variat interstitio 3<sup>io</sup> sinistro unipunctato.

6. \**lixa*. *Picea nitida, thorace postice valde constricto, lateribus breviter sinuatis, basi distincte biimpresso, obsolete punctato, clytris profunde striatis, striis punctatis; abdomine pedibusque rufo-piceis.* Long. .4, lat. .16. Habitat cum præcedentibus.

Præcedente latior, picea, nitida. *Mandibulæ* glabræ. *Caput* læve, impressionibus rectis, profundis, linea transversa minus impressa. *Thorax* capite fere duplo latior, latitudine fere sesqui brevior, lateribus latius rotundatis, postice brevius sinuatis, valde retractis: disco minus convexus; impressione transversa anteriore vix conspicua, linea arcuata tenuissima, margini approximata, posteriore valde profunda, linea longitudinali profunda, antice paulo abbreviata, basalibus valde profundis, obsolete punctatis, distincto bistriatis, striis postice subconnexis; carina brevissima, acuta. *Elytra* thorace vix latiora, ovalia, humeris valde rotundatis, apice rotundata, levissime sinuata, basi profunde impressa; striis tenuibus at profundis, punctatis; interstitiis planis, tertio unipunctato; subtus rufo-picea, antennis palpis, pedibusque dilutioribus.

7. \* *abdominalis*. *Picea*, vel *nigro picea*, *nitida*, *abdomine pedibusque dilutioribus*; *thorace linea transversa antica nulla*; *elytris profunde striatis, striaque rudimentali brevi*. Long. .4, lat. .16. Habitat cum prioribus.

Præcedentem maxime refert. *Picea nitida*. *Caput* fere idem, *linea transversa paulo profundiore*. *Mandibulæ* glabræ. *Thorax* paulo angustior, postice minus retractus, lateribus paulo minus rotundatis; *linea transversa antica fere nulla*, impressione transversa anteriore obsoleta, posteriore profunda, *linea longitudinali tenui, fere integra, basalibus paulo minus profundis, stria interiore longa, at minus impressa, postice cum exteriori arcuatim connexa*. *Elytra* minus ovalia, humeris satis distinctis, postice rotundata, leviter sinuata; profunde striata, striis vix conspicue punctatis, rudimentali brevi, distincta, inter 1<sup>am</sup> et 2<sup>am</sup> sita; interstitiis modice convexis, 3<sup>io</sup> unipunctato.

NOTA.—Species præcedentes summa affinitate connexæ sunt, et ægre dignoscendæ.

8. \* *corax*. *Depressiuscula*, *nigra nitida*, *thorace lateribus valde rotundatis, postice brevius sinuatis, impressione anteriore angulata*; *elytris profunde striatis, striis leviter punctatis, rudimentali brevi, punctoque impresso, interstitio 7<sup>mo</sup> basi elevato*. Long. .61, lat. .22. Habitat etiam ad Rocky Mountains.

*Nigra nitida*, *depressiuscula*; *mandibulæ* obsolete striatæ. *Caput* *linea transversa obsoleta*, impressionibus frontalibus profundis, brevibus, oculis prominulis. *Thorax* capite vix sesqui latior, latitudine paulo brevior, antice emarginatus, angulis anticis sub acutis, lateribus valde rotundatis, postice brevius sinuatis, coarctatus, angulis posticis accurate rectis; disco minus convexus, margine tenui reflexo, quam in præcedentibus paulo latiore; *linea antica transversa tenuissima, margini valde approximata, impressione transversa anteriore angulata, distincta, posteriore minus profunda, linea longitudinali profunda, integra, basalibus profundis, profunde bistriatis, striis longis, subæqualibus*. *Elytra*

thorace vix latiora, latitudine sesqui longiora, basi levissime angustata, humeris distinctis, apice rotundata, leviter sinuata, planiuscula; profunde striata, striis leviter punctatis, postice minus profundis, interstitiis versus basin convexis, 7<sup>mo</sup> convexiore basi paulo elevato, 3<sup>io</sup> unipunctato, stria rudimentali distincta, brevi, inter 1<sup>am</sup> et 2<sup>dam</sup> sita.

§ 3. Thorace quadrato-subcordato, tenuiter marginato, lateribus rotundatis, postice valde retractis, brevissime sinuatis, angulis posticis rectis, minime rotundatis, basi leviter emarginato, utrinque bistriato, breviterque carinato; elytris stria rudimentali brevi, nonnunquam confusa, cum prima juncta, interstitio 3<sup>io</sup> unipunctato.

*PTEROSTICHUS.* Bonelli.

1. *orbata*. *Nigra nitida, thorace leviter cordato, basi utrinque bistriato carinatoque; elytris striato-punctatis pone basin dilatatis, punctoque impresso, interstitiis levissime convexis.* Long. 685, lat. 26. Habitat in Georgia.

*Feronia orbata.* Newman, Ent. Mag. Vol. V.

*Nigra, nitida. Mandibula striata.* Caput læve, impressionibus frontalibus linearibus, parallelis, brevibus, profundis; linea transversa tenuissima; oculis parvis, modice prominulis. *Thorax* capite paulo latior, latitudine summa vix brevior, leviter cordatus, tenuiter marginatus, antice leviter emarginatus, angulis anticis acutiusculis, rotundatis; lateribus modice rotundatis, pone medium valde retractis, prope angulos posticos rectos breviter sinuatis, basi leviter emarginatus; disco minus convexus; impressionibus transversis distinctis, anteriore valde angulata, linea longitudinali tenui, fere integra, basalibus valde profundis, obsolete rugosis, bistriatis, stria interiore paulo longiore, postice cum exteriori indistincte connexa; carina valde distincta. *Elytra* connata, basi thorace paulo angustiora, pone basin sensim dilatata, pone medium rotundata, ad apicem leviter sinuata; an-

tice planiuscula, postice convexa, striatopunctata, striis externe et postice levioribus, interstitiis leviter convexis, 3<sup>io</sup> puncto impresso; stria rudimentali valde abbreviata.

2. *sodalis*. *Nigra nitida, thorace cordato, basi utrinque bistriato, carinatoque, clytris striato-punctatis, interstitiis planis punctoque impresso.* Long. .685, lat. .255. Habitat in Pennsylvania rarius.

Præcedenti proxima, thorace tamen lateribus magis rotundatis, elytrisque minus profunde striatis, interstitiis planis distincta.

*Nigra, nitida. Mandibulæ striatæ. Caput* sicut in *F. orbata*. *Thorax* capite latior, latitudine summa paulo brevior, tenuiter marginatus, antice minus emarginatus, angulis anticis magis rotundatis, lateribus multo magis rotundatis, pone medium magis retractis, prope basin breviter minusque sinuatis, angulis posticis rectis, minus prominulis, basi leviter emarginatus; disco modice convexus; impressione transversa anteriore vix distincta, posteriore satis notata, linea longitudinali tenui, profunda, integra, basalibus valde profundis, obsolete rugosis, bistriatis, stria interiore paulo longiore, tuberculo parvo externo ad basin, postice cum exteriori magis distincte arcuatim connexa; carina valde distincta. *Elytra* connata, thorace plus duplo longiora, basi non latiora, pone basin leviter dilatata, postice rotundata, vix sinuata: planiuscula, tenuiter striato-punctata, striis externe et postice levioribus, interstitiis planis, 3<sup>io</sup> puncto impresso; stria rudimentali longiuscula.

3. *\*vagens*. *Angustior, nigra nitida; thorace lateribus rotundatis, postice retractis vix sinuatis, basi impunctato, clytris profundius striatis, interstitiis planissimis.* Long. .6, lat. .21. Habitat in provinciis occidentali-bus.

*F. orbata* angustior, depressior, nigra, nitida. *Caput* impressionibus frontalibus brevibus, valde profundis, linea transversa obsoletissima. *Thorax* capite duplo latior, latitudine paulo brevior, subquadratus, vix cordatus, antice leviter emarginatus, lateribus modice rotundatis, postice retractis, obtuse sinuatis,

angulis posticis obtusis, leviter rotundatis; linea arcuata pliciformi obsoleta, margini anteriori approximata, impressione transversa anteriore indistincta, posteriore satis profunda, basalibus rotundatis, profundis, impunctatis, bistriatis, striis postice arcuatim connexis. *Elytra* thorace non latiora, planiuscula, ovalia, latitudine fere duplo longiora, humeris satis distinctis; opaciuscula, profunde striata striis impunctatis versus apicem minus impressis, interstitiis accurate planis, 7<sup>mo</sup> prope basin levissime elevato.

Optime facit transitionem ad § 4, hæc species.

§ 4. Thorace subquadrato, postice leviter retracto, lateribus rotundatis, margini tenui reflexo, versus basin paulo latiore, basi utrinque striato, carinaque externa munito.

† *Elytris* leviter striato-punctatis, stria abbreviata rudimentali vix conspicua, inter 1<sup>am</sup> et 2<sup>dam</sup> sita; interstitio 3<sup>io</sup> unipunctato: habitus ovalis, subelongatus, crassiusculus.

1. *heros*. Say. Journ. Ac. Nat. Sc. Vol. III.

*americana*. Dej. Sp. Gen. Habitat in provinciis australibus, et in Texas: a Dom. Dr. Engelman benevole data.

2. *sigillata*. Say. Trans. Am. Phil. Soc. Vol. II.

*vidua*. Dej. Sp. Gen. Habitat in provinciis mediis rarius.

3. \* *seximpressa*. *Nigra, opaciuscula, thorace subquadrato, lateribus magis rotundato, basi utrinque triimpresso, elytris planiusculis*. Long. .62, lat. .22. Habitat ad Rocky Mountains, prope Long's Peak.

*Nigra, vix nitida; palpi picei: mandibulae glabrae. Caput* latitudine sesqui longius, leve, impressionibus frontalibus rectis, profundis, linea transversa tenui, levi; oculis parvis prominulis. *Thorax* subquadratus, antice posticeque truncatus, lateribus valde rotundatus, postice levissime retractus, angulis posticis leviter obtusis, apice rotundatis; margine tenui reflexo; disco leviter convexus; impressione transversa anteriore valde profunda, lin-

eari, arcuata, alteraque ei approximata et parallela indistincta, posteriore profunda, cum basalibus profundis confusa, linea longitudinali profunda, utrinque paulo abbreviata; basi utrinque tristriata, stria interna brevi obliqua, intermedia longiore, postice curvata, et cum externa brevi arcuatim obsolete conjuncta, carina basali brevissima. *Elytra* thorace non latiora, antice fere recte truncata, postice leviter sinuata, striis profunde punctatis, interstitiis planis.

†† *Elytris* profunde striatis, stria prima basi obliqua; stria abbreviata inter 1<sup>am</sup> et 2<sup>dam</sup> sita, longiuscula; interstitio 3<sup>io</sup> bipunctato: habitus subelongatus, gracilior.

4. *stygica*. Say. Trans. Am. Phil. Soc. Vol. II, et Dej. Sp. Gen. Abundat ubique; ad speciem hanc referenda est *F. rugicollis* Haldeman Proc. Ac. Nat. Sc. Vol. I, specimen thorace rugulis transversis distinctis oblecto, sed non aliter diversum.

5. *coracina*. Newman. Ent. Mag. Abundat ad Niagaram, et in provinciæ Ohio parte septentrionali.

§ 5. Thorace subquadrato, tenuissime marginato, elytris angustiore, postice retracto, angulis posticis obtusis, minime rotundatis, dente minutissimo nonnunquam armatis, basi utrinque unistriato, carina nulla: elytris profunde striatis, stria abbreviata inter 1<sup>am</sup> et 2<sup>dam</sup> longiuscula; interstitio 3<sup>io</sup> bipunctato, vel impunctato. Habitus gracilis.

1. *lachrymosa*. Newman loc. cit. Habitat in provinciis australibus.

2. *interfector*. Newman ibid. Habitat NovEboraci rarius.

3. *adoxæ*. Say. Trans. Am. Phil. Soc. Vol. II.

4. *tristis*. Dej. Sp. Gen. Habitat ubique.

5. *fastidita*. Dej. ibid. Habitat ubique rarius.

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§ 6. Thorace postice valde retracto, lateribus vix rotundato, angu-



lis posticis obtusis, rotundatis, margine reflexo, versus basin paulo latiore; basi truncato, utrinque late profundeque impresso, estriato; elytris thorace non latoribus, profunde striatis, stria abbreviata profunda, cum prima adjuncta, interstitio 3<sup>io</sup> quadripunctato. Habitus gracilis.

1. *moesta*. Say. Trans. Am. Phil. Soc. Vol. II.

*superciliosa*. Say. Journ. Ac. Nat. Sc. Vol. III.

*relicta*. Newman Ent. Mag. Habitat in Pennsylvania, et ad Novum Aurelianum. Variat interstitio altero tripunctato.

§ 7. Thorace lateribus valde rotundatis, postice retractis, leviter sinuatis, angulis posticis in (1) rectis, in (2) obtusis, basi leviter emarginato, utrinque unistriato; elytris apice sinuato rotundatis, striis externis fere obsoletis, stria abbreviata fere nulla, inter 1<sup>am</sup> et 2<sup>ndam</sup> sita; interstitio 3<sup>io</sup> unipunctato. Habitus elongatiusculus.

1. *unicolor*. Say. Trans. Am. Phil. Soc. Vol. II. Habitat in Georgia ad montes, a Dom. Ludovico LeConte lecta.

2. \* *Brevoorti*. *Subconvexa, nigra nitida, thorace postice valde retracto; angulis obtusis leviter rotundatis, basi breviter, profundeque impresso; elytris profunde striatis, striis leviter punctatis, externis minus impressis.* Long. .63, lat. .23. Habitat in Alabama: a Dom. Haldeman amice data.

In honore Jac. C. Brevoort, viri non solum liberalitate summa, humanitateque lepida, sed etiam ingenio acuto, doctrinaque accurata; entomologiæ necnon cultoris seduli.

Habitus subconvexus, Steropi fere cujusdam, nigra, nitida. *Caput* impressionibus frontalibus linearibus, valde obliquis, rectis, profundis, linea transversa tenui, distincta. *Thorax* antice capite plus duplo latior, postice non lator, antice leviter emarginatus,

lateribus valde rotundatis, postice obsolete sinuatis, angulis posticis obtusis, apice paulo rotundatis; transverse leviter rugosus; impressionibus transversis fere nullis, linea longitudinali profunda, utrinque paulo abbreviata; basalibus oblongis parvis profundis. *Elytra* thorace non latiora, subovalia, latitudine sesqui longiora, apice profunde sinuato-rotundata, profunde striata, striis obsolete punctatis, externis minus impressis, 7<sup>ma</sup> et 8<sup>va</sup> fere oblitteratis; interstitiis leviter convexus.

Variat impressionibus thoracis transversis satis distinctis.

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§ 8. Thorace rotundato-quadrato, lateribus rotundatis, postice retractis, angulis obtusis, valde rotundatis basi emarginato, utrinque breviter unistriato; elytris oblongis, apice rotundatis, leviter sinuatis, profunde striatis, striis externis oblitteratis; stria abbreviata punctiformi, inter 1<sup>am</sup> et 2<sup>am</sup> sita, interstitio 3<sup>io</sup> tripunctato.

1. **obscura.** Say. Trans. Am. Phil. Soc. Vol. IV. Habitat NovEboraci rarissime.

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STEROPUS. Meg.

Antennæ breviusculæ, articulo 3<sup>io</sup> sequentibus paulo longiore; 2<sup>do</sup> duplo fere brevior: mentum dente lato, breviusculo, apice non impresso, late sed acute emarginato: palpi articulo ultimo levissime triangulari, apice valde truncato. Thorax postice valde angustatus, subrotundatus, angulis posticis obtusissimis, rotundatis, basi emarginato, utrinque foveolato; elytra ovalia thorace paulo latiora, apice valde rotundata leviter sinuata; stria rudimentali punctiformi, inter 1<sup>am</sup> et 2<sup>am</sup> sita; interstitio 3<sup>io</sup> unipunctato.

1. **faber.** Germ. Ins. Nova (Molops.)

*tenebricosus.* Dej. Sp. Gen. (Feronia.)

*spoliatus.* Newman. Ent. Mag. (Feronia.) Habitat in provinciis australibus.

## BROSCUS? Panzer.

## CEPHALOTES? Bonelli.

Antennæ breviusculæ submoniliformes, leviter compressæ; articulo 4to leviter clavato, quam tertio paulo brevior, sequentibus æquante; palpi crassiusculi, articulo ultimo leviter ovali, apice minus subito truncato, leviter rotundato; labiales articulo ultimo levissime triangulari. Mentum dente longo, obtuso, non emarginato, apice profundo impresso. Thorax et elytra fere sicut in Steropo. Habitus Steropo convexior, capite majusculo, latitudine thoracem fere æquante. A Brosco Europæis differt, habitu minore et latiore, mandibulis paulo minus elongatis.

1. *obsoletus*. Say. Trans. Am. Phil. Soc. Vol. II. Habitat in Alabama, a Dom. Haldeman amice datus: thorace elytris paulo angustiore, impressione anteriore nulla dignoscitur: striisque elytrorum punctatis, profundioribus.
2. \* *approximatus*. *Piceus nitidus*, thorace elytris non angustiore, linea antica transversa profunda, margini valde approximata, linea longitudinali tenui vix distincta, impressione transversa posteriore distincta; elytris striato-punctatis, striis externis oblitteratis, punctoque impresso; abdomine pedibusque rufo-piceis. Long. .4, lat. .15. Habitat in Pennsylvania rarius, a Dom. Melsheimer benevole datus.

Præcedente robustior, et notis thoracicis facile dignoscendus.

3. \* *laevipennis*. *Angustiusculus*, nigro-piceus, nitidissimus. thorace transversim leviter rugoso, antice posticeque transverse impresso, linea longitudinali satis profunda; elytris vix striatis, fere lævissimis, puncto unico magno impresso; abdomine pedibusque rufo-piceis. Long. .35, lat. .13. Habitat in Georgia, a Dom. Ludovico LeConte lectus.

Præcedente angustior, thorace postice magis retracto, elytris non angustiore; elytris magis elongatis, postice leviter attenuatis obsoletissimis.

4. *morio*. Dej. Sp. Gen. Ab omnibus præcedentibus differt impressione transversa thoracis anteriore valde profunda, margini non approximata, medio obtuse angulata; linea longitudinali tenuissima; elytris apice leviter attenuatis, nunc lævissimis, nunc obsolete striato-punctatis; puncto magno impresso. Habitus robustior. Habitat in Georgia rarius.

MYAS. Ziegler.

1. *coraci* pus. Say. Trans. Am. Phil. Soc. Vol. II. (Fœnia.)

*cyanescens*. Dej. Sp. Gen. Habitat in provinciis mediis; fœmina mari paulo convexior, et latior.

2. \**foveatus*. Niger, obscure violaceus; thorace marginibus non depressis, basi utrinque profunde bifoveato, foveis coeuntibus, elytris profunde striatis, striis levibus. Long. .63, lat. .24. Habitat NovEboraci rarissime; amicitiae Dom. Ed. Willcox debitus.

Præcedente paulo angustior et convexior; niger nitidus, elytris obsolete violaceo-micantibus. Caput impressionibus valde profundis, oculis parvis, valde exstantibus. Thorax capite cum oculis duplo latior, antice vix emarginatus, angulis anticis deflexis, vix conspicuis, lateribus modice rotundatus, postice levissime retractus, basi leviter emarginato, angulis posticis fere rectis, non rotundatis; disco convexiusculus, tenuissime marginatus, margine nullo depresso: impressionibus transversis nullis, linea longitudinali postice abbreviata profunda; basalibus utrinque duabus, valde profundis, foveoliformibus, coeuntibus, obsolete rugosis; interiore longiore, stria postice abbreviata, cum linea transversali brevi interno tendente angulum rectum formante. Elytra thorace non latiora, parallela, apice rotundata, leviter sinuata; modice convexa, profunde striata, striis levissimis, striaque abbreviata inter 1<sup>am</sup> et 2<sup>dam</sup> distincta.

A M. coracino thorace ad latera non depresso, impressionibus

basalibus magis profundis, coëuntibus, stria interna abbreviata, posticeque angulata; necnon forma angustiore, striisque impunctatis valde distinctus.

STOMIS. Clairville.

1. *americanus*. Laporte, Etudes Ent.

*pusillus*. Harris Cat. (*Platynus*.)

*Elongatus, piceus, nitidus, pubescens: capite thoraceque nigris, hoc elongato-cordato, angulis posticis rectis, divergentibus; elytris profunde striatis, striis obsolete punctatis.* Long. .25, lat. .08. Habitat in provincia Vermont: a Dom. Harris benevole datus.

Habitus fere *Stomis* pumicati Europæ. *Elongatus, nitidus, pubescens.* *Caput* magnum, antice acutum, pone oculos sensim retractum, transverseque constrictum, nigrum, læve; impressionibus frontalibus longis, profundisque. *Antennæ, palpique* rufi. *Thorax* capite non latior, latitudine sesqui longior, cordatus, postice retractus, antice posticeque truncatus, angulis anticis valde rotundatis, posticis rectis subdivergentibus; niger, disco convexus, tenuissime marginatus, antice posticeque sparse punctatus; impressionibus transversis indistinctis, posteriore profundiore, linea longitudinali integra, basalibus linearibus prælongis, extrorsum leviter curvatis. *Elytra* thoracis basi duplo latiora, postice rotundata, non sinuata, rufo-picea; profunde striata, striis obsolete punctatis, interstitiis valde convexis. *Subtus* piceus, postpectus grosse sparse punctatum. *Pedes* rufi.

ISOPLEURUS. Kirby.

Ad hoc genus insecta tria retuli, quæ a *Bradyto* differunt, palpis labialibus apice fere acutis, maxillaribus quam in *Bradyto* minus truncatis: mentum medio dentatum est, dento parvo, brevi, integro. Omnino cum descriptione Kirbyana congruunt. Cum *Isopleuro* nitido (K.) descripta est (F. B. A. Vol. IV, p. 50.) species secunda (I. MacLeayi) quæ plane ad genus *Selenophorum* (Dej.) pertinet. Nam mentum edentatum est, elytra

versus marginem pubescentia, seriebusque tribus punctorum impressa: characteres qui in Selenophoro solo inveniuntur.

In specimina omnia mea tibiæ anticæ calcaribus duobus terminalibus instructæ sunt; quorum unum parvum est, altero duplo brevius. In Bradyto spina hæc secunda rudimentalis est, et vix conspicua.

In ♂ articuli tarsorum anticorum tres dilatati sunt: 1<sup>mus</sup> latitudine paulo longior, triangularis, antice leviter emarginatus: 2<sup>ndus</sup>, 3<sup>iusque</sup>, longitudine paulo latiores, triangulares, angulo exteriori rotundati, interiore oblique emarginati, antice parum emarginati; subtus papillis biseriatæ. Generi Acorio (Zimm.) affinis videtur; differt tamen antennarum articulo 3<sup>io</sup> reliquis vix longiore, mentique dento simplice.

# 1. hyperboreus. Dej. Sp. Gen. (Amara.)

*Oblongo-ovatus, nigro-piceus, thorace sub-quadrato, lateribus rotundato, angulis posticis obtusis non rotundatis, basi utrinque biimpresso, sparseque punctato: clytris striatis, striis subtiliter punctatis; antennis, palpis, pedibusque obscure ferrugineis.* Long. .4, lat. .17. Specimen unicum ad Long's Peak inventum.

Nigro-piceus nitidus. *Caput* valde obtusum, oculis prominulis, punctis duobus ad oculorum marginem; impressionibus frontilibus brevibus, profundis; sutura clypeo-frontali tenui. *Labrum* breve, leviter emarginatum; clypeus obtuse emarginatus. *Antennæ, palpi*que ferruginei. *Thorax* capite sesqui latior, latitudine fere duplo brevior, subquadratus, antice leviter emarginatus, angulis anticis rotundatis, lateribus æqualiter rotundatus, basi truncatus, angulis posticis obtusis non rotundatis; disco leviter convexus, tenuiter marginatus; impressionibus transversis parum distinctis, linea longitudinali utrinque abbreviata, basalibus geminis, brevibus, punctatis, exteriori profundiore; carina externa valde obtusa. *Elytra* thorace non latiora, convexiuscula, apice leviter sinuata; striata, striis subtiliter punctatis, magis ad basin; stria rudimentali longa: interstitiis parum convexis; seria punctorum submarginali medio lato interrupta. *Pedes* obscure-ferruginei.



*Curtonotus latior* (Kirby, F. B. A.) esse videretur, nisi mentum recte visum unidentatum abhorruit.

2. \* *septentrionalis*. *Nigro-piceus, obscure æneus, nitidus*: thorace quadrato, lateribus modice rotundato, angulis posticis obtusis non rotundatis; basi biimpresso, sparse punctato, elytris striatis, striis obsolete punctatis, postice lævibus; antennis, palpis, pedibusque ferrugineis. Long. .3, lat. .13. Habitat ad Lacum Superiorem.

Oblongo-ovatus, nigro-piceus, nitidus, elytris obscure æneis. *Caput* obtusum, læve; impressionibus frontalibus, brevibus profundis, sutura transversa tenui; punctis duobus ad oculorum marginem: *labrum* antice submarginatum. *Antennæ palpique* ferruginei. *Thorax* capite latior, latitudine vix sesqui brevior, subquadratus, apice emarginatus, angulis anticis rotundatis, lateribus modice rotundatus, basi truncatus, angulis posticis obtusis, non rotundatis; disco minus convexus, tenuiter marginatus; impressionibus transversis nullis, linea longitudinali integra, basalibus geminis, brevibus, sparse punctatis, exteriore profundiore, carina externa obtusa brevi. *Elytra* thorace non latiora, apice vix sinuata, striata, striis versus basin obsolete punctatis, rudimentali longa: interstitiis fere planis; serie punctorum submarginali late interrupta. *Abdomen* rufo-piceum, *pedes* obscure-ferruginei.

3. \* *terrestris*. *Ovalis, convexus, piceus, nitidus, interdum subæneus*: thorace quadrato, antice subangustato, lateribus rotundato, angulis posticis leviter explanatis; basi biimpresso, sparse punctato: elytris striatis, interstitiis fere planis; antennis palpis pedibusque rufis. Long. .28, lat. .13. Habitat ad Fort Laramie, fluminis Platte.

*Amaræ chalceæ* (Dej.) simillimus, at thoracis marginibus explanatis facile distinguendus. Ab *Isopleuro nitido* (Kirby) striis elytralibus impunctatis differe videtur: sed descriptio nimis concisa determinationem rectam vetat.

Piceus nitidus, nonnunquam subæneus. *Caput* læve, impressionibus frontalibus brevibus, suturaque transversa profundis. *Palpi* rufi: *antennæ* rufæ, versus apicem obscuratæ. *Thorax* capite duplo latior, latitudine plus sesqui brevior, quadratus, antice subangustatus, paulo emarginatus, angulis anticis deflexis, subacutis, lateribus rotundatus, basi fere recte truncatus, angulis posticis rectis: disco paulo convexus, margine versus angulos posticos subexplanato: impressionibus transversis indistinctis, posteriore profundiore, linea longitudinali integra, basalibus geminis brevibus, confluentibus, exteriore paulo longiore, sparse minus subtiliter punctatis. *Elytra* apice vix sinuata, striata, interstitiis planis, stria rudimentali longa; serie submarginali punctorum medio vix interrupta; epipleuræ rufæ. *Subtus* piceus, pedibus rufis.

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PERCOSIA. Zimmerman.

1. *obesa*. Say. Trans. Am. Phil. Soc. Vol. II. N. S. (Feronia.)

*patricia*. teste Dej. Sp. Gen. Habitat in provinciis mediis et borealibus, sat frequens: elytris in ♂ minus profunde striatis.

2. \* *diffinis*. Elliptica, convexa, nigra nitida, thorace quadrato, latitudine duplo brevior, lateribus rotundato, basi punctato; elytris thorace non latioribus, profunde striato-punctatis; antennis obscuris, basi, palpis, pedibusque ferrugineis. Long. .38, lat. .185. Habitat ad Rocky Mountains.

Præcedente angustior, et minus obesa, elytris postice non dilatatis.

Elliptica, convexa, nigra, pernitida. *Caput* læve, punctis 2 solitis ad oculorum marginem; impressionibus frontalibus brevibus, rectis. *Antennæ* obscuræ, basi rufæ; *palpi* rufi, *oculi* vix prominuli. *Thorax* capite plus duplo latior, latitudine duplo brevior, apice emarginatus, antice angustatus, angulis anticis valde deflexis, rotundatis, lateribus rotundatus, basi truncatus,

angulis posticis rectis: disco convexus, basi depressus, punctatusque, margine versus angulos posticos levissime explanato; impressione transversa anteriore parum distincta, posteriore recta, profunda, linea longitudinali integra, basalibus profundis, cum impressione transversa confusis, elevatione parva inter impressionem et marginem lateralem. *Elytra* parallela, thorace non latiora, apice paulo sinuata, profunde striato-punctata, interstitiis parum convexis, stria rudimentali longa. *Pedes* obscure ferruginei.

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CELIA. Zim.

1. *inæqualis*. Kirby, F. B. A. Vol. IV. Habitat ad Lacum Superiorem minus frequens. Exacte cum A. interstitiali (Dej. Sp. Gen.) quadrat, sed interstitia elytralia inæqualia non meminit Ill. Com. Dejean. In specimenibus meis, interstitium 3ium 5tum et 7mum paulo elevata sunt.
2. *splendida*. Hald. Proc. Ac. Nat. Sc. Vol. I. *Elytra* sicut in præcedento inæqualia sunt, sed interstitiis alternatim minus elevatis. Habitat in provinciis mediis minus frequens.
  - $\alpha$ . aurichalcea.
  - $\beta$ . aureo-viridis.
  - $\gamma$ . aureo-coerulea. In Mus. Dom. Melsheimer.
3. \* *gibba*. *Obesa, convexa; nigro-anea nitida, thorace antice vix angustato, lateribus rotundato, angulis posticis obtusis non rotundatis; impressionibus basalibus duabus, punctatis; elytris tenuiter striatis, interstitiis planis; antennis palpis, tibiis tarsisque rufis.* Long. .3, lat. .15. Specimen unicum ad Lacum Superiorem inveni.

*Obesa, convexa, Percosiam fere simulans: nigro-anea nitida. Caput obtusum, læve, impressionibus frontalibus brevibus. Antennæ, palpique rufi; oculi prominuli. Thorax capite duplo latior, latitudine plus sesqui brevior, apice vix emarginatus,*

antice parum angustatus, angulis anticis deflexis; lateribus rotundatus, basi recte truncatus, angulis posticis leviter obtusis non rotundatis; impressionibus transversis distinctis, posteriore profundiore, recta; linea longitudinali integra; basalibus utrinque duabus, brevibus, triangularibus, punctatis. *Elytra* striata, striis postice non profundioribus; rudimentali longa; interstitiis planis. *Subtus* nigra nitida, tibiis tarsisque saturate rufis.

Genus hocce ab *Amara* tibiis posticis ♂ intus simplicibus differt.

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AMARA. Lat.

§ 1. Antennæ articulis duobus ferrugineis.

1. **punctulata.** Dej. Sp. Gen.

*littoralis.* Esch. Specimen unicum ad Rocky Mountains inventum, omnino congruit cum altero ab Ill. Dom. Klug misso, et a Dom. Willcox amico dato.

2. \* **confusa.** *Elliptica, subconvexa, ænea nitida, thorace antice angustato, lateribus parum rotundato, impressionibus omnibus fere obsoletis; elytris striatis, interstitiis fere planis; antennarum articulis 2 rufis, palpis pedibusque nigris.* Long. .32, lat. .155. Habitat ad Rocky Mountains.

Ad speciem hanc referenda est *A. vulgaris*, (Kirby, F. B. A. Vol. IV.;) articulus 2<sup>ndus</sup> antennarum colore variat et interdum obscure rufus, fere piceus videtur. *A. patruelis* (Dej. Sp. Gen.) esse videretur, nisi thorax basi impunctatus abhorruit.

Habitus fere *A. impuncticollis* (Say.) at paulo convexior. *Ænea* vel nigro-ænea, nitida. *Caput* antice subacutum, levius oculis majusculis; impressionibus frontalibus fere nullis. *Palpi* nigri. *Antennæ* nigro-piceæ, articulis 2 rufis. *Thorax* capite duplo latior, latitudine fere duplo brevior, apice emarginatus, angulis anticis deflexis, acutis, antice angustatus, lateribus paulo rotundatus, basi fere recto truncatus, angulis posticis acutiusculis; impressionibus transversis parum distinctis, linea longitu-

dimidi tenuissima; basalibus duabus, obsoletis, exteriore obliqua paulo evidentiore. *Elytra* apice parum sinuata, striata, striis postice paulo profundioribus, interstitiis vix convexis, fere planis, stria rudimentali longa. Subtus nigro-ænea, pedibus nigris.

§ 2. *Antennæ articulis 3 rufis.*

3. *impuncticollis*. Say. Trans. Am. Phil. Soc. Vol. II. N. S.

*trivialis*. teste Dej. Sp. Gen. Abundat ubique.

4. *communis*. Fabr. teste Dej. Sp. Gen. Habitat cum priore.

Præcedente paulo convexior; thorace paulo minus lateribus rotundato, angulis posticis minus acutis, impressionibus basalibus magis indistinctis, palpis basi ferrugineis, tibiis tarsisque magis brunnæis ægre dignoscendus.

5. \* *difficilis*. *Nigra, vix ænea, thorace antice angustato, lateribus modice rotundato, angulis posticis rectis, margine non explanato, impressionibus basalibus vix distinctis; elytris tenuiter striatis, interstitiis planis; pedibus, palpisque apice nigro-piceis.* Long. '35, lat. '16. Habitat in Territorio Missouriensi.

Præcedentes duas valde refert, at paulo convexior, et thoracis margine non explanato distincta videtur.

*Nigra, vix ænea. Caput læve. Antennæ rufo-obscuræ, art. 3 basalibus pallidioribus, palpi ferruginei, articulo ultimo nigro-piceo. Thorax capite duplo latior, latitudine fere duplo brevior, apice profunde emarginatus, angulis anticis deflexis acutis, antice angustatus, lateribus paulo rotundatus, basi fere recto truncatus, angulis posticis rectis: disco parum convexus, margine non explanato; impressionibus transversis vix distinctis, linea longitudinali utrinque abbreviata, basalibus valde indistinctis, exteriore omnino oblitterata. Elytra postice paulo sinuata, tenuiter striata, striis postice profundioribus, interstitiis omnino planis, stria rudimentali vix distincta. Pedes nigro-picei.*

6. \* *fallax*. *Ænea subnitida; thorace antice angustato, impressione transversa anteriore arcuata, lateribus paulo*

*rotundato, margine non explanato, impressionibus basalibus valde obsoletis; elytris tenue-striatis, striis postice vix profundioribus, interstitiis omnino planis, palpis pedibusque nigro-piceis, tibiis tarsisque brunneis.* Long. .31, lat. .15. Specimen unicum ad Lacum Superiorem inventum.

A. impuncticollem valde refert, at paulo angustior, et thorace longiore differre videtur.

*Ænea subnitida.* Caput obsolete rugulosum, impressionibus frontalibus parvis. Palpi toti picei. Antennæ obscuræ, articulis 3 rufo-testaceis. Thorax capite duplo latior, latitudine sesqui brevior, antice angustatus, apice profunde emarginatus, angulis anticis acutis, lateribus modice rotundatis, basi fere recte truncatus, angulis posticis subacutis; disco parum convexus, transverso leviter rugosus, antice obsolete striatus, versus angulos anticos irregulariter subrugosus, margine non explanato: impressionibus transversis indistinctis, anteriore arcuata, linea longitudinali tenuissima integra, basalibus indistinctis, exterior omnino oblitterata. Elytra apice paulo sinuata, tenuiter striata, striis postice vix profundioribus, interstitiis omnino planis, stria rudimentali brevi, distincta: serie punctorum submarginali medio non interrupta. Pedes nigri, tibiis tarsisque brunneo-piceis.

Obs.—In specimine meo stria elytrorum 3<sup>ia</sup> et 4<sup>ta</sup> ad quadrantem ab apice confluunt: nescio an nota specifica sit, an varietas fortuita.

7. \* *convexa.* *Oralis, convexa, cupreo-ænea nitida, capite thoraceque nigro-æneis, hoc antice parum angustato, basi bifoveolato, foveis punctiformibus; elytris striatis, striis postice vix profundioribus, interstitiis planis, antennarum basi testaceo, tibiis tarsisque brunneo-piceis.* Long. .28, lat. .13. Specimen unicum ad Lacum Superiorem inveni.

Præcedentibus multo convexior, cupreo-ænea, nitida, capite thoraceque nigro-æneis. Caput rotundatum læve, impressio-



nibus frontalibus obliquis, brevibus; *oculi* prominuli: *palpi* picei, *antennæ* obscuræ, articulis 3 testaceis. *Thorax* capite duplo latior, latitudine duplo brevior, apice parum emarginatus, antice leviter angustatus, angulis anticis valde obtusis, deflexis, lateribus rotundatus, basi truncatus, angulis posticis rectis; impressione transversa anteriore nulla, posteriore recta, non profunda, linea longitudinali tenui integra, basalibus duabus, parvis, interiore brevi, recta, exteriori obliqua, punctiformi, prope angulum sita. *Elytra* thorace non latiora, postice leviter angustata, apice paulo sinuata, tenuiter striata, striis postice vix profundioribus, rudimentali obliqua distincta; interstitiis planis; serie punctorum submarginali medio non interrupta. *Subtus* nigro-ænea; tibiis tarsisque piceis.

8. \* *polita*. *Elliptica, subdepressa. ænea, pernitida, thorace antice angustato emarginatoque, basi utrinque bimpresso, elytris striatis, striis postice vix profundioribus, interstitiis planis; antennarum palporumque basi rufo; epipleuris, tibiis tarsisque brunneis. Long. .25, lat. 155. Habitat ad Rocky Mountains.*

Habitus omnino *A. communis*, at thoracis marginibus minime explanatis, impressionibusque basalibus duabus facile distinctus; thorace quoque ad latera magis rotundato, angulis anticis minus acutis.

*Ænea pernitida; caput* laeve, impressionibus frontalibus brevibus; oculis prominulis. *Antennæ* obscuræ, articulis 3 pallidis; *palpi* picei, basi ferruginei. *Thorax* capite duplo latior, latitudine duplo brevior, antice angustatus, apice paulo emarginatus, angulis anticis deflexis, rotundatis, lateribus modice rotundatus, basi fere recte truncatus, angulis posticis subrectis; disco leviter convexus; impressionibus transversis fere nullis, linea longitudinali tenui integra, basalibus duabus distinctis; interiore brevi, exteriori obliqua, ad angulum posteriorem tendente, oblonga, fossuliformi. *Elytra* apice sinuata, tenuiter striata, striis postice vix profundioribus; rudimentali recta; interstitiis planis; serie punctorum submarginali medio subinterrupta:

epipleuræ brunneæ. *Subtus* nigro-subænea, tibiis tarsisque brunneis.

Variat striis elytrorum obsolete punctatis, thorace basi nonnunquam striato, pedibusque concoloribus nigro-piceis.

9. **basillaris**. Say. Trans. Am. Phil. Soc. Vol. II. N. S. (Feronia.)

Habitat in provinciis australibus minus frequens.

10. **lucidula**. Dej. Sp. Gen. (Amara.)

*basalis*. Harris. N. E. Farmer. In Massachusetts inventa, a Dom. Harris amice data.

11. **chalcea**. Dej. Sp. Gen. Habitat in provinciis mediis et australibus.

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TRIÆNA.† nov. gen.

Ab Amara differt menti dente lato, brevissimo, apice obtuso, vix impresso; palpis labialibus articulo ultimo cylindrico, vix ovali, apice valde truncato, compressoque; tibiisque anticis calcare trifido terminatis, lobis acutis: in speciebus subtus descriptis, stria septima ad apicem punctis notata est sicut in Anisodactylis § 3 (Tricentro); quocum calcar trifidum, mentumque vix dentatum affinitatem indicant. Ad hoc genus forte A. tricuspidatum (Sturm) Europæ pertinet.

1. **angustata**. Say. Trans. Am. Phil. Soc. Vol. II. N. S. (Amara.) Habitat ubique.

2. **indistincta**. Hald. Proc. Ac. Nat. Sc. Vol. I. (Amara.) Habitat ubique.

Præcedente simillima, at forma latiore, elytrisque minus profunde striatis satis distincta. Variat impressionibus basalibus thoracis obsolete punctatis.

3. \* **depressa**. *Oblonga depressa, subænea, thorace quadrato,*

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† *τρίαινα, tridens.*

*antice subangustato, vix emarginato, lateribus modice rotundato; impressionibus basalibus utrinque duabus, viridi-micantibus, punctatis; elytris striatis, interstitiis fere planis; antennarum basi pedibusque rufis, palpis piceis. Long. .3, lat. .12. Specimen unicum ad Lacum Superiorem inventum.*

Oblonga depressa, habitus fere Harpali cujusdam. Nigropiceus, subviridis. *Caput* læve, impressionibus frontalibus brevibus; oculis prominulis; *palpi* picei. *Antennæ* obscuræ, articulis 3. 4<sup>to</sup>que basi rufis. *Thorax* capite duplo latior, latitudine sesqui brevior, quadratus, antice subangustatus, apice vix emarginatus, lateribus usque ad medium rotundatis, dein fere rectis, basi bisinuatus, angulis posticis rectis; disco leviter rugosus; impressionibus transversis non profundis, anteriore angulata, basalibus geminis, viridi-micantibus obsolete punctatis, exterioro minore. *Elytra* parallela, apice paulo sinuata, striata, interstitiis fere planis; stria rudimentali distincta 7<sup>ma</sup> apice 5-punctata; serie punctorum submarginali medio interrupta; epipleuræ rufæ. *Subtus* nigra, *pedes* saturate rufi.

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ACRODON. Zim.

1. *rubrica*. Hald. Proc. Ac. Nat. Sc. Vol. I. (Amara.) Habitat in provinciis mediis minus frequens.

2. *musculis*. (*musculus?*) Say. Trans. Am. Phil. Soc. Vol. II. N. S.: Dej. Sp. Gen.

*Nigro-picea, vel rufa; subanæa nitida; thorace antice subangustato, lateribus paulo rotundato, impressionibus basalibus parvis, plus minusve distinctis, nonnunquam punctatis; elytris profunde striato-punctatis, striis externis levioribus; antennis, palpis, pedibusque rufis. Long. .22, lat. .10. Habitat in provinciis australibus et ad Rocky Mountains.*

Species admodum varians, sequenti simillima; at thorace brevior, lateribus minus rotundato; elytris apice vix sinuatis sed rotundatis ægre cognoscenda.

3. \* **contempta**. *Nigro-picea, nitida; thorace antice subangustato, lateribus rotundato, impressionibus basalibus parvis, punctatis; elytris profunde striato-punctatis, striis externis levioribus; stria rudimentali distincta: antennis palpis, pedibusque rufis.* Long. .22, lat. .10. Habitat NovEboraci, et ad Rocky Mountains.

Elliptica, subconvexa, nigro-picea, nitida. *Caput* læve; impressionibus frontalibus vix distinctis, oculis subprominulis. *Palpi* rufi: *antennæ* rufæ, versus apicem paulo obscuratæ. *Thorax* capite duplo latior, latitudine fere duplo brevior antice subangustatus, apice parum emarginatus, angulis anticis rotundatis, lateribus rotundatus, basi truncatus, angulis posticis rectis, vel leviter obtusis: disco leviter convexus; impressionibus transversis parum distinctis, basalibus duabus, subprofundis, exteriore minore, sparse punctatis. *Elytra* apice paulo sinuata, profunde striato-punctata, striis externis levioribus rudimentali distincta: interstitiis leviter convexis; serie punctorum submarginali medio vix interrupta. *Subtus* picea, *abdomen* rufopiceum, *pedes* rufi.

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BRADYTUS. Stephens.

1. **exaratus**. Dej. Sp. Gen. (Amara.)

*brevilabris*. Kirby (Curtonotus) F. B. A. Habitat in provinciis mediis, sat frequens. C. *brevilabrem* (Kirby) ad hanc speciem, propter labrum transversum, breve, subemarginatum, retuli: sed descriptio Kirbyana nimis concisa est pro diagnosi certa.

2. **furtivus**. Say. Trans. Am. Phil. Soc. Vol. IV. N. S. (Amara.) Habitat in provinciis occidentalibus.

3. **avidus**. Say. Journ. Ac. Nat. Sc. Vol. III. (Zabrus.)

*confinis*. Dej. Sp. Gen. (Amara.) Abundat in provinciis mediis. Variat subtus pallide castaneus.

## CURTONOTUS. Stephens.

1. \* *laticollis*. *Subelongatus, nigro-piceus, subæneus, nitidus, thorace cordato, postice coarctato, punctato, utrinque bistriato, carina externa valde distincta; elytris parallelis, striato-punctatis; antennarum basi, palpis, pedibusque obscure ferrugineis.* Long. .55, lat. .22. Habitat ad Rocky Mountains.

Ad hanc speciem referendus est *C. convexiusculus* (Kirby, Faun. Bor. Am.); a *convexiusculo* Europæo, differt thorace ad latera magis rotundato, antice punctato, impressioneque transversa anteriore profundiuscula.

*Nigro-piceus, subæneus.* *Caput* læve, impressionibus frontilibus parvis, non profundis, sutura frontali distincta; *labrum* latitudine sesqui brevius, antice subemarginatum. *Antennæ* obscuræ, basi, cum palpis rufo-ferruginæ. *Thorax* capite sesqui latior, latitudine duplo brevior, subcordatus, antice parum emarginatus, angulis anticis rotundatis, lateribus valde rotundatus, prope basin coarctatus, breviter sinuatis; basi levissime emarginato, angulis posticis acutis prominulis; disco subconvexus, antice punctatus; basi toto pone impressionem transversum depresso, punctatoque, densius ad latera: impressione transversa anteriore, arcuata, profunda, posteriore medio angulata, linea longitudinali antice abbreviata, profunda, basalibus geminis, brevibus, interiore paulo profundiore; carina basali elevata, recta, valde distincta. *Elytra* thoracem vix latitudine æquantia, elongata, parallela, apice leviter sinuata, profunde striato-punctata, stria rudimentali longa; serie punctorum submarginali medio valde interrupta. *Subtus* piceus; *pedes* obscure ferruginei.

2. \* *carinatus*. *Subelongatus, nigro-piceus, nitidus; thorace quadrato, postice angustato, non coarctato; antice posticeque punctato; basi utrinque bistriato, carina externa valde distincta; elytris parallelis, striato-*

*punctatis ; antennis, palpis, pedibusque obscure ferrugineis.* Long. .46, lat. .17. Cum priore inventus.

Habitus fere *C. torridi* (Illiger) Europæ. Subelongatus, nigropiceus, nitidus. *Caput* minus obtusum, læve, impressionibus frontalibus brevibus, profundis, sutura frontali distincta; *labrum* latitudine sesqui brevius, antice non emarginatum. *Antennæ, palpiquo* obscure ferruginei. *Thorax* capite non sesqui latior, latitudine sesqui brevior, quadratus, postice paulo angustatus, apice parum emarginatus, angulis anticis rotundatis, lateribus antice modice rotundatis, postice brevissime, vix conspicue sinuatis, basi truncatus, angulis posticis rectis, minime rotundatis; disco paulo convexus, antice posticeque punctatus; impressionibus transversis profundis, posteriore angulata, linea longitudinali antice abbreviata; basalibus geminis, punctatis, inferiore indistincta, cum exteriori profunda confluyente; carina basali recta, elevata, valde distincta. *Elytra* parallela, apice distincte sinuata, profunde striato-punctata, stria rudimentali longa; serie punctorum submarginali medio valde interrupta. *Subtus* piceus; *pedes* rufo-picei, vel obscuro ferruginei.

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SPECIES SEQUENTES MIHI IGNOTÆ.

***Patrobus angicollis*** Randall. Bost. Journ. Nat. Hist. Vol. II. Habitat in provincia Maine.

***Anchomenus cincticollis***. Say. Trans. Am. Phil. Soc. Vol. IV. (Species dubia.)

***Agonum anchomenoides***. Randall. loc. cit. sup. Habitat in Maine.

***albicrus***. Dej. Sp. Gen.

***maculifrons***. Say. Jour. Ac. Nat. Sc. Vol. III. (Feronia.) Habitat in Terr. Miss.

***simile***. Kirby, F. B. A. Vol. IV.



**affine.** Kirby, *ibid.*

**foveicolle.** Chaudoir Bull. de Soc. Imp.  
de Moscou (a leno vix distinctum.)

**scutellare.** Say, Journ. Ac. Nat. Sc. Vol.  
III. (Feronia.) (Species vix deter-  
minanda, a specimine ægro descrip-  
ta; verisimiliter moerens Dej.)

**Olisthopus cinctus.** Say, Trans. Am. Phil.  
Soc. Vol. IV. Habitat in provinciis  
occidentalibus.

**Poecilus atratus.** Newman Ent. Mag. Vol. V.  
**micans.** Chaud. loc. cit. sup. (Species  
dubia, a chalcite temere separata.)

**fraternus.** Say, Long's Exp. to St. Pe-  
ter's Riv. Vol. II. (Ob descriptionem  
nimis concisam non agnoscendus.)

**Stereocerus similis.** Kirby, F. B. A.

**?rostratus.** Newman, (Feronia) Ent.  
Mag. Vol. V.

**Argutor mandibularis.** Kirby, F. B. A.

**brevicornis.** Kirby, *ibid.*

**honestus.** Say, Trans. Am. Phil. Soc.  
Vol. II. (Feronia.)

**saphyrinus.** Chaud. loc. cit. sup. Ha-  
bitat in Louisiana.

**Feronia fallax.** Dej. Sp. Gen.

**ebenina.** Dej. Sp. Gen.

**punctatissima.** Rand. loc. cit. Ha-  
bitat in Maine.

**monedula.** Newman loc. cit.

**moerens.** Newman *ibid.*

*picipes*. Newman, *ibid*.

*hypolithus*. Say. Trans. Am. Phil. Soc.  
Vol. II.

*Steropus ventralis*. Say. *ibid*. Habitat in Terri-  
torio Missouriensi.

*Amara anthracina*. Hald. Proc. Ac. Nat. Sc.  
Vol. I. Habitat in Pennsylvania.

*lævipennis*. Kirby, F. B. A. Vol. IV.

*discors*. Kirby, *ibid*.

*pallipes*. Kirby, *ibid*.

*Curtonotus rufimanus*. Kirby, *ibid*.

*latior*. Kirby, *ibid*.

Divisio 2.—*Harpalidæ*.—Westwood.

*Quadrimani*.—Lat.

*Harpaliens*.—Dej.

Subdiv. I.—*Daptini*.

*Acinopidæ*.—Hope.

CORPUS antico non angustatum.

CAPUT postice minime retractum.

PALPI articulo ultimo ovali apice truncato.

TARSI ♂ non dilatati, vel perparum dilatati.

EURYDERUS. LeConte.

1. *zabroides*. LeConte, Annals of the Lyceum. Vol. IV.

Habitat ad Rocky Mountains frequens.

GEOPINUS.\* nov. gen.

CORPUS crassum, convexum, subelongatum, apterum.

CAPUT magnum, subquadratum, subconvexum, postice non an-

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\* γεοπινος—terram laborans, quasi fodiens.

gustatum, impressione brevi frontali utrinque inter oculos; sutura cranio-clypeali distincta.

MANDIBULÆ validæ, subelongatæ, incurvatæ, obtusæ; dextra dente mediali acuto.

MAXILLÆ apice valde acutæ, incurvatæque, intus dense ciliatæ.

LABRUM subquadratum, latitudine non brevius, antice emarginatum, angulis anticis valde rotundatis.

MENTUM magnum, longitudine triplo latius, modice concavum emarginatum, edentatum.

LIGULA lata, apice levissime emarginata, angulis anticis acutis divergentibus, paraglossis angustis concavis, incurvatis, apice vix rotundatis, ligula paulo brevioribus.

PALPI *labiales* articulo penultimo reliquis tenuiore, ultimo sesqui fere longiore; ultimo apice truncato: *maxillares*, articulo antepenultimo paulo longiore; penultimo leviter obconico, ultimo brevior, leviter ovali, apice truncato.

*maxillares interni* (vel *galea*) filiformes, articulo ultimo sesqui longiore, leviter incurvato.

ANTENNÆ capite cum mandibulis vix longiores, submoniliformes; articulo 1<sup>mo</sup> crassiore, longioreque; 3<sup>io</sup> sequentibus paulo longiore, 1<sup>um</sup> fere æquante; ultimo ovali.

OCULI rotundati, prominuli.

THORAX clytris sesqui angustior, leviter cordatus, antice leviter emarginatus, lateribus rotundatus, postice paulo retracts, basi recte truncatus.

ELYTRA antice recte truncata, lateribus parallela, postice rotundata, leviter sinuata, convexa; stria rudimentali cum stria 1<sup>na</sup> dorsali conjuncta.

SCUTELLUM triangulare.

PEDES validi.

TIBIÆ *anticae* setis adpersæ, ala terminali rotundata externa; extus irregulariter emarginatæ, denticulatæ; *intermediae* setis spinulosis adpersæ, extus irregulariter serratæ, spinis terminalibus binis acutis; *posticae*

setis spinulosis adpersæ, spinis terminalibus brevibus, obtusis, spatulæformibus.

Tarsi articulis leviter triangularibus, decreascentibus, ultimo longiore; in ♂ non dilatati.

UNGUES graciles.

TROCHANTERES postici crassi, femoribus duplo breviores.

1. *incrassatus*. Dej. Sp. Gen. (Daptus.) Habitat in provinciis mediis, in locis sabulosis, minus frequens.

#### AGONODERUS. Dej.

1. *lineola*. Fabr. Syst. Eleuth.

*furcatus*. Fabr. Syst. Eleuth. Habitat ubique.

2. *pallipes*. Fab. Syst. Eleuth. Habitat in provinciis australibus et occidentalibus.

3. \* *dorsalis*. Sturm Cat. Habitat in provinciis mediis et occidentalibus.

Præcedente paulo major, thorace latiore, postico magis retracto, lateribus magis rotundatis, angulis posticis obtusioribus minus rotundatis; elytris apice minus subito rotundatis, striorum interstitiis planioribus, plagaque nigra ad basin non contracta; sutura ferruginea basi dilatata.

α. plaga elytrali antico obsoleta, ita ut maculam furcatam format.

4. *infuscatus*. Dej. Sp. Gen. Abundat in provinciis australibus; habitat etiam NovEboraci minus frequens.

5. \* *suturalis*. *Fusco-niger, subnitidus, thorace antice transverse biimpresso, basi impresso, punctatoque; elytris suturo, margineque externo pallidis; antennarum basi pedibusque pallidis*. Long. .23, lat. .1. Habitat NovEboraci minus frequens.

*Fusco-niger, minus nitidus. Caput impressionibus frontilibus brevibus arcuatis; antennæ fuscae, basi testaceæ. Thorax latitudinè brevior, subquadratus, antice truncatus, basi leviter rotundatus; lateribus modico rotundatus, angulis posticis obtusis valde*

rotundatis; basi levissime retractus; disco convexus: impressione transversa anteriore duplicata, posteriore profunda, angulata: linea longitudinali tenuissima; basalibus profundis punctatis, cum impressione transversa posteriore confluentibus; margine tenuissimo testaceo. *Elytra* thorace vix latiora, parallela, convexa; stria rudimentali brevissima, interstitiis planis: 3<sup>io</sup> bipunctato; fusco-nigra, sutura, marginequo lato ad striam 5<sup>am</sup> extendente testaceis. *Pedes* pallidi.

Corpore breviusculo, convexiusculo cum A. infusato congruit; impressionibus autem thoracis valde distinctus angulisque posticis minus rotundatis.

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CRATACANTHUS. Dej.

1. *dubius*. Beauv. Ins. d'Am. (Harpalus.)

*pennsylvanicus*. Dej. Sp. Gen. Abundat ubique usque ad Rocky Mountains.

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PIOSOMĀ,† nov. gen.

CORPUS apterum, crassum, convexum, subcylindricum.

CAPUT subquadratum minus convexum, postico non retractum, impressionibus fere nullis.

MANDIBULÆ validæ, incurvatæ, acutæ.

MAXILLÆ incurvatæ, acutæ, intus ciliatæ.

LABRUM quadratum, longitudine paulo latius, antice emarginatum, angulis rotundatis.

MENTUM breve, concavum, profunde emarginatum, edentatum, angulis anticis subrotundatis.

LIGULA angusta, antice rotundata.

PARAGLOSSÆ divergentes, rotundatæ.

PALPI *labiales* articulo penultimo paulo longiore; ultimo leviter ovali, truncato.

*maxillares* articulo antipenultimo longiore crassio-

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† *πιος* pinguis, et *σφαμα*, corpus.

requē; penultimo leviter obconico, basi tenui; ultimo leviter ovali, truncato.

ANTENNÆ longitudine caput cum thoraco æquantes, moniliformes, articulis rotundato-obconicis; 3<sup>io</sup> paulo tenuiore; 1<sup>mo</sup> crasso, cylindrico.

OCULI vix prominuli.

THORAX quadratus, antice posticeque truncatus, lateribus rotundatis, versus basin leviter sinuatis, angulis posticis rectis.

SCUTELLUM breve.

ELYTRA basi truncata, parallela, convexa, stria rudimentali inter 1<sup>am</sup> et 2<sup>ndam</sup> sita.

PEDES crassiusculi.

TIBIÆ anticæ compressæ, subdilatatæ, extus spinulosæ, sed non dentatæ.

reliquæ spinulosæ, calcaribus terminalibus breviusculis.

TARSI anticæ, articulis brevibus triangularibus, setis longis instructis; articulo ultimo longiore, clavato.

reliqui articulis leviter descrescentibus (ultimo longiore) setosis.

UNGUES simplices elongati.

TROCHANTERES postici femoris dimidium æquantes.

Generi *Cratognatho* (Dej.) affinis videtur.

1. \* *setosum*. *Castaneum nitidum, sparse grosse punctatum, setis longis e punctis orientibus; clytris striatis, interstitiis uniseriatim grosse punctatis, setosisque*. Long. .35, lat. .15. Habitat circiter Long's Peak, Rocky Mountains, minus frequens.

Statura fere *Cratacanthi dubii*, paulo tamen latius. *Castaneum, nitidum*. *Caput* subtilius punctatum, punctis paucis grossis anticis, setisque nonnullis longis. *Thorax* latitudine sesqui brevior, antice et postice truncatus, lateribus rotundatis, versus basin leviter sinuatis, angulis posticis accurate rectis: disco convexus, totus densius subtilissimo punctatus: sparse, grosse



punctatus, magis ad latera et basin: setis longis e punctis orientibus; impressionibus fere nullis; basi cum angulis posticis subdepresso. *Elytra* thorace non latiora, striata, striis impunctatis, modice profundis; stria rudimentali longiuscula: interstitiis fere planis, grosse uniseriatim punctatis, punctis setis longis instructis. *Subtus* dilutius castaneum.

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Subdivisio II.—*Eurytrichini*.

*Harpalidæ*.—p. Hope.

*Stenolophidæ*.—p. Hope.

**CORPUS** antice paulo angustatum.

**CAPUT** postico leviter retractum.

**PALPI** articulo ultimo ovali, apice truncato.

**TARSI** antiqui et intermedii ♂ valde dilatati, subtus pube densissima, brevi, erecta vestiti.

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**AMPHASIA.** Newman.

*HARPALUS*.—p. Dej.

*OPHIONUS*.—p. auctorum.

1. **femoratus.** Dej. Sp. Gen.

*sericeus.* Harris. N. E. Farmer. Habitat in provinciis mediis.

2. **interstitialis.** Say. Trans. Am. Phil. Soc. Vol. II.

*obscuripennis.* Dej. Sp. Gen.

*fulvicollis.* Newman Ent. Mag. Vol. V.

Errore quodam Ill. Dom. Newman "labipalporum articulum apicalem in globo minimo desinire" dicit: in speciminibus omnibus a me visis, articulus ultimus palporum labialium ovalis est, et subacutus, apice vix truncato, at paulo rotundato, articulo ultimo palporum maxillarium omnino similis. Descriptio ejus specifica cum insecto nostro exacte quadrat, pube brevi excepta, cum qua specimina nostra vestuntur. Sæpe tamen inveniuntur pube partim attrita.

SPONGOPUS. nov. gen.

CORPUS oblongum, depressum, alatum.

CAPUT mediocre, antice subacutum, oculis prominulis.

MANDIBULÆ curvatæ, apice acutæ.

LABRUM subquadratum, latitudine paulo brevius, antice emarginatum, angulis rotundatis.

MENTUM breve, concaviusculum, profunde emarginatum, medio dente lato, obtuso, brevi, angulis anticis subacutis.

MAXILLÆ subelongatæ, apice incurvatæ, acutæ, intus sparse ciliatæ.

LIGULA longa angusta.

PALPI subelongati, tenuiusculi, articulo ultimo præcedentem æquante, leviter ovali, fere cylindrico, apice paulo attenuato, truncatoque.

ANTENNÆ corpore duplo breviores, tenues, articulo 1<sup>mo</sup> crassiore; 2<sup>do</sup> reliquis duplo brevior, leviter obconico; 3<sup>io</sup> reliquos æquante, parum obconico; ultimo apice rotundato.

THORAX subquadratus, postice angustatus, basi truncatus; lateribus valde rotundatus, margine depresso reflexo.

ELYTRA thorace latiora, apice sinuata, apice summo valde rotundato, basi truncata; profunde striata.

SCUTELLUM triangulare, mediocre.

PEDES crassiusculi.

TIBIÆ omnino sicut in *Anisodactylo*; calcare terminali tibiarum anticarum simplici, leviter curvato, gracili.

TARSI ♂ *antici*, articulo 1<sup>mo</sup> triangulari antice truncato, leviter dilatato; 2<sup>do</sup>, 3<sup>io</sup>que sesqui latioribus triangularibus, lateribus angulisque rotundatis; 4<sup>to</sup> apice emarginato; omnibus subtus pube densissima brevi vestitis; ultimo precedentes 2 longitudine æquante: ♀ *invisi*.

*intermedii* minus dilatati, articulis sicut in *anticis* formati vestitisque.

*postici* filiformes, articulis longitudine descrescentibus, ultimo præcedentes 2 æquante.

UNGUES simplices.

1. \* *verticalis*. *Niger nitidus*; *thorace margine reflexo, basique punctato, angulis posticis obtusis non rotundatis; elytris profunde striatis, interstitiis convexis, punctatis; mandibulis, maculaque verticali rubris; antennis, palpis, pedibusque rufis*. Long. '5, lat. '2. Habitat ad Paterson Novæ Cæsareæ, a Dom. Guex benevole datus.

Oblongus, depressus, niger nitidus. *Caput* minute punctulatum, impressionibus frontilibus brevibus valde profundis; sutura transversa profunda: macula verticali subquadrata rubra, valde distincta: mandibulæ rubræ, apice nigræ. *Palpi* rufi. *Antennæ* rufæ, articulo 1<sup>mo</sup> pallidiore. *Thorax* capite duplo latior, latitudine summa duplo brevior, antice leviter emarginatus, postico angustatus, angulis posticis obtusis non rotundatis; lateribus valde rotundatus, basi truncatus; margine late reflexo, cum basi toto depresso, dense punctato; impressionibus transversis profundis, medio angulatis; linea longitudinali integra, profunda; basalibus latis subprofundis. *Elytra* planiuscula, parallela, thorace latiora, apice oblique sinuata, apice summo valde rotundato; profunde striata, stria rudimentali longa recta: interstitiis convexis, dense subtilius punctatis; 3<sup>io</sup> unipunctato: serie punctorum submarginali non interrupta. *Pectora* punctata; segmenta abdominis utrinque foveolata, obsoleteque punctata. *Pedes* rufi; trochanteres saturatiores. Corporis forma *Piesmum* submarginatum *Feronidarum* revocat.

#### ANISODACTYLUS. Dej.

§ 1. Typici; tibiæ anticæ calcare terminali basi dilatato.

Species 3-7 summo affinitate conjunctæ, et descriptionibus auctorum vix separandæ sunt; in thoracis forma tamen valde dis-

tinctæ, et primo fere aspectu dignoscantur; ad speciem quamque descriptionem thoracis adjuuxi, ut levior sit investigandi labor.

1. *discoideus*. Dej. Sp. Gen. Habitat in provinciis mediis et australibus minus frequens.
2. *baltimorensis*. Say. Trans. Am. Phil. Soc. Vol. II. N. S. Dej. Sp. Gen.

*St. Crucis?* Fabr. Syst. Eleuth. Abundat ubique.

3. *nigrita*. Dej. Sp. Gen. Habitat in provinciis mediis.

A speciebus aliis nigris thorace postice magis retracto, lateribus levissime sinuatis, angulis posticis rectis, non rotundatis; antice posticeque dense subtilius punctato; margine tenui depresso; impressionibus transversis distinctis, anteriore angulata; linea longitudinali integra, basalibus oblongis profundis, separandus.

4. *interpunctatus*. Kirby, F. B. A. Vol. IV. (Harpalus.)

Specimen unicum ad Cataractam Niagaram, mense Maio inventum.

*Thorax* latitudine sesqui brevior, antice posticeque leviter angustatus, lateribus æqualiter rotundatus, angulis posticis obtusis non rotundatis, basi truncatus; disco minus convexus, margine latiusculo depresso, tenue punctato; antice dense subtilius punctatus; postice dense confluentè punctatus; impressionibus basalibus latis non profundis; transversis fere nullis, longitudinali integra; *elytra* striata interstitiis convexis, dense minus subtiliter punctatis.

5. *agricola*. Say. Trans. Am. Phil. Soc. Vol. II. (Harpalus.): Dej. Sp. Gen.

Habitat in provinciis mediis et occidentalibus.

*Thorax* latitudine plus sesqui brevior, postice vix angustatus, lateribus æqualiter rotundatus; angulis posticis obtusis, non rotundatis; disco minus convexus, antice subtilius, postice dense punctatus: margine latiusculo depresso, punctato: impressionibus transversis fere nullis; linea longitudinali integra; basa-

libus latis, subprofundis: *Elytra* striata interstitiis convexis, oculo acute armato subtilissime sparse punctatis.

6. \**striatus*. *Niger nitidus, thorace quadrato, convexiusculo, lateribus rotundato, margine depresso tenui, angulis posticis rectis non rotundatis: elytris striatis, interstitiis convexis: antennarum articulo 1<sup>mo</sup>, palpisque ferrugineis*. Long. .56, lat. .2. Specimen unum ad Evansville, Ia. alterumque ad Rocky Mountains legi.

Statura fere præcedentis: niger, nitidus; *Caput* subtilissime punctatum, impressionibus frontalibus brevibus profundisque; sutura frontali profunda: *labrum* profundius emarginatum. *Antennæ* nigro-piceæ, articulo 1<sup>mo</sup> ferrugineo; *palpi* ferruginei. *Thorax* capite sesqui latior, latitudine sesqui brevior, antice emarginatus, angulis anticis rotundatis, lateribus magis rotundatus, postice leviter angustatus, basi recte truncatus, angulis posticis rectis, non rotundatis; disco convexiusculus, antice sparse tenue punctato; margine tenuiore depresso, punctato; basi dense punctatus, punctis versus medium vix distinctis; impressione transversa anteriore arcuata; linea longitudinali integra, basalibus oblongis profundis. *Elytra* parallela, postice obtusa, parum sinuata; profunde striata; interstitiis convexis, impunctatis, 7<sup>mo</sup> ad apicem 3-punctato.

Ab *A. nigrita*, palpis ferrugineis, thorace latiore, postice paulo minus retracto, margine depresso angustiore, impressione transversa non angulata, elytrorumque interstitiis impunctatis separandus.

7. *laticollis*. Kirby, F. B. A. (*Harpalus*.)

*melanopus*. Hald. Proceed. Ac. Nat. Sc. Vol. I.

Habitat in provinciis mediis minus frequens.

*Thorax* latitudine sesqui brevior, antice levissime angustatus, leviter emarginatus, angulis anticis deflexis, rotundatis; basi recte truncatus, lateribus æqualiter rotundatus, angulis posticis parum obtusis, rotundatis; disco parum convexus, antice subtilissime punctatus; margine depresso, subtiliter punctato; im-

pressionibus transversis indistinctis, linea longitudinali integra, basalibus latis non profundis, dense subtiliter punctatis, punctis versus medium nonnunquam extendentibus. *Elytra* apice parum sinuata, stria 7<sup>ma</sup> versus apicem punctis 2, vel 3 impressis.

§ 2. \* **TRIPLECTRUS**: tibiæ anticæ calcaro terminali trifido, lobis acutis: corpus ellipticum.

8. \* **rufipennis**. *Niger nitidus*; *thorace quadrato, antice subangustato, lateribus late depressis, cum basi punctatis*; *elytris rufo-castaneis, margine infusato, striatis, interstitiis subconvexis, tertio unipunctato, antennarum articulo 1<sup>mo</sup> subtus, palporumque apice rufis*. Long. .53, lat. .2. Specimen unicum ♂ a Dom. Brevoort prope Brooklyn, insulæ Longæ NovEboraci inventum, et amicissime datum.

Statura omnino sequentis, at thorace paulo convexiore, basi distinctius punctato.

*Niger nitidus*; *caput* obtusum læve, impressionibus frontalibus punctiformibus, sutura frontali tenui; *antennæ* nigro-piceæ, articulo 1<sup>mo</sup> subtus ferrugineo: *palpi* nigro-picei, articulo ultimo, penultimoque apice rufis. *Thorax* capite duplo latior, antice paulo angustatus, emarginatus, angulis anticis rotundatis, lateribus æqualiter rotundatus; basi recte truncatus, angulis posticis subrotundatis; disco leviter convexus, antice subtilissime punctatus striatusque; margine valde depresso, versus basin crescente, cum basi distinctius punctato: impressionibus transversis fore nullis, linea longitudinali tenui, integra, basalibus latis, rotundatis, subduplicibus. *Elytra* thorace non latiora, apice leviter sinuata, apice summo rotundato; planiuscula, rufo-castanea, nitida, versus marginem obscurata; striata, interstitiis subconvexis, stria rudimentali perlonga rectaque: interstitio 3<sup>io</sup> nonnunquam unipunctato, 7<sup>mo</sup> ad apicem punctis 4-6 impressis. *Pedes* nigri, tarsi anticis piceis.

9. **carbonarius**. Say. Trans. Am. Phil. Soc. Vol. II.

Kirby, F. B. A. Vol. IV.



*luctuosus*. Dej. Sp. Gen. Habitat NovEboraci.

10. \* *pinguis*. *Ovalis crassus*; *thorace quadrato, antice angustato, basi leviter emarginato, margine late, indistincteque depresso, cum basi medio obsolete punctato rugosoque; impressi nibus basalibus indistinctis sparse punctatis; elytris interstitiis postice subconvexis, alternatim ad apicem punctatis; antennarum basi palpisque apice rufis*. Long. .55, lat. 22. Habitat ad Rocky Mountains.

Sequentibus simillimus at paulo convexior.

Niger parum nitidus. *Caput* obtusum, impressionibus frontibus punctiformibus, profundis, sutura frontali tenui, distincta; *palpi* nigri apice summo rufo. *Antennæ* nigro-piceæ, articulis 2 rufo-ferrugineis. *Thorax* capite plus duplo latior, latitudo summa duplo fere brevior, antice angustatus, profunde emarginatus, basi leviter emarginato, angulis anticis rotundatis, lateribus æqualiter rotundatus ampliusque, angulis posticis rectis; disco parum convexus, transverse leviter rugosus; margine versus basin crescente, depresso, obsolete rugose-punctato; impressionibus transversis parum distinctis, anteriore paulo angulata, linea longitudinali distincta tenui, utrinque valde abbreviata, basalibus oblongis non profundis, punctis paucis notatis, basi medio irregulariter striatus, obsoleteque punctatus. *Elytra* thoraci arcto conjuncta, postice subangustata, apice parum sinuata; striata; interstitiis leviter convexis, 3<sup>io</sup>, 5<sup>to</sup> et 7<sup>mo</sup> versus apicem serie brevi punctorum; serie submarginali medio non interrupta, punctis autem minoribus.

11. \* *crassus*. *Ovalis, crassus, niger, subnitidus*: *thorace antice angustato, lateribus indistincte depressis, posticeque subexplanatis, linea longitudinali antice valde abbreviata, basalibus oblongis, fovea antica impressis; elytris striatis interstitiis fere planis; postice alternatim punctatis; antennarum basi, palpisque apice rufis*. Long. .47, lat. .19. Habitat NovEboraci minus frequens.

Sequentibus simillimus. Ovalis, crassus, niger, subnitidus. *Caput* læve, impressionibus frontilibus parvis, vix distinctis, punctiformibus, sutura frontali tenuissima. *Antennæ* obscuræ, basi rufæ; *palpi* apice summo rufi. *Thorax* capite plus duplo latior, latitudine fere duplo brevior, antice angustatus, valde emarginatus, angulis anticis rotundatis; basi leviter emarginatus, lateribus æqualiter rotundatus; disco minus convexus, margine postice crescente late depresso, versus angulos posticos leviter explanato, punctis paucis obsoletissimis notato: impressionibus transversis fere nullis, linea longitudinali tenui, antice valde abbreviata, basalibus oblongis, modice profundis, stria brevi antica notatis. *Elytra* thoraci arcte conjuncta, postice subangustata, ad apicem leviter sinuata; striata, interstitiis fere planis; 3<sup>io</sup>, 7<sup>mo</sup>que postice punctis 5, 5<sup>to</sup> punctis 2 impressis; serie submarginali medio non interrupta, punctis subæqualibus.

12. \* *gravidus*. Ovalis, crassus, niger, parum nitidus; thorace antice angustato, lateribus late, indistincte depressis; linea longitudinali vix evidente, basalibus subprofundis, fovea antica impressis: elytris striatis, interstitiis subconvexis, 3<sup>io</sup> 5<sup>to</sup> 7<sup>mo</sup>que paulo elevatis, postice seriatis punctatis: antennarum basi rufæ. Long. .52, lat. .2. Habitat NovEboraci, minus frequens.

Præcedenti simillimus, postice tamen paulo minus angustatus, thoraceque postice vix explanato distinctus. *Caput* læve, impressionibus frontilibus punctiformibus, profundis; sutura frontali distincta foveaque antica notatum. *Palpi* nigri, apice summo rufo: antennarum articulis 2 rufis, reliquis nigro-piceis. *Thorax* capite duplo latior, latitudine fere duplo brevior, antice magis angustatus, emarginatus: angulis anticis paulo minus rotundatis: lateribus æqualiter rotundatus, ampliatusque, basi levissime emarginatus, angulis posticis rectis, non rotundatis; margine late, indistincteque depresso, versus basin crescente; impressione transversa anteriore nulla, posteriore recta, linea longitudinali tenuissima, vix evidente, antice valde abbreviata,

basalibus oblongis, modice profundis, striola antica notatis. *Elytra* thoraci arcte conjuncta, postice subangustata, ad apicem leviter sinuata; striata, interstitiis subconvexis, 3<sup>io</sup> 5<sup>to</sup>que parum elevatis, dorso obsoleto carinatis, 3<sup>io</sup>, 5<sup>to</sup>, 7<sup>mo</sup>que postice seriatim punctatis: serie submarginali medio non interrupta.

13. *merula*. Germ. Ins. Nov. (Harpalus.) Dej. Sp. Gen.

Habitat in provinciis australibus.

Thorace antice minus angustato, ad latera obsoletius depresso, elytris profundius striatis, interstitiis magis convexis, serieque punctorum submarginali valde interrupta distinguendus.

14. *rusticus*. Say. Trans. Am. Phil. Soc. Vol. II. Habitat ubique.

Præcedenti simillimus; thorace tamen antice multo magis angustato, impressionibus basalibus paulo angustioribus, striola obsoleta, subobliqua impressis, serieque elytrorum submarginali non interrupta facile distinctus; interstitiis elytrorum nunc leviter convexis, nunc fere planis.

15. \* *ellipticus*. *Ellipticus, depressus; niger nitidus, thorace antice angustato, angulis posticis leviter rotundatis, margine vix depresso, impressionibus basalibus indistinctissimis, angustis, sparse punctatis; elytris interstitiis fere planis, 3<sup>io</sup> unipunctato, 5<sup>to</sup>, 7<sup>mo</sup>que postice punctatis; palpis antennarumque anticulis 2 rufis.* Long. .38, lat. .155. Habitat NoviAureliani, a Dom. Guex benevole datus.

Corpus Oodiforme. Depressus, ellipticus, niger, nitidus. *Caput* læve, impressionibus frontalibus brevibus profundis, sutura frontali distincta. *Antennæ* obscuræ, articulis 2 rufis; *palpi* rufi. *Thorax* capite duplo latior, latitudine sesqui brevior, antico angustatus, emarginatusque, basi leviter emarginatus; angulis anticis rotundatis, lateribus æqualiter rotundatus, angulis posticis obtusis, rotundatis; margine obsoletissime depresso; impressionibus transversis nullis, linea longitudinali tenuissima, utrinque abbreviata, basalibus rectis, angustis, minime profundis, sparse

punctatis. *Elytra* thorace non latiora, apice paulo sinuata; profunde striata, interstitiis planis, 3<sup>io</sup> ad trientem ab apice unipunctato, 5<sup>to</sup> ad apicem bipunctato, 7<sup>mo</sup> punctis 5 vel 6 serie dispositis: serie submarginali medio paulo interrupta. *Pedes* nigri, tibiis anticis et intermediis rufo-piceis, tarsis nigro-piceis.

§ 3. \* *APLOCENTRUS*; † tibiæ anticæ calcare terminali simplice; palpis crassiusculis, articulo ultimo magis ovali. Corpus vel ellipticum, vel oblongum.

16. *cænus*. Say. Trans. Am. Phil. Soc. Vol. II.: Dej. Sp. Gen.

Habitat NovEboraci minus frequens.

α. Piceo-subcoeruleus: a Dom. Brevoort benevole datus.

17. \* *subæneus*. *Ellipticus*, nigro-piceus, nitore coeruleo micans; thorace quadrato, antice angustato, lateribus rotundatis; angulis posticis rectis, margine depresso, basalibus subprofundis, punctatis; elytris striatis, interstitiis paulo convexis, 3<sup>io</sup> unipunctato, antennarum basi, palpisque rufis; epipleuris, tibiis tarsisque rufo-piceis. Long. .31, lat. .12. Habitat ad Brooklyn NovEboraci, a Dom. Brevoort amice datus

*Ellipticus*, nigro-piceus, nitore coeruleo irroratus. *Caput* læve, impressionibus frontalibus fossulæformibus, cumque sutura transversa distinctis. *Mandibulæ* piceæ; *antennæ* fuscæ, articulis 3 rufis; *palpi* rufi. *Thorax* capite plus duplo latior, latitudine plus sesqui brevior; antice angustatus, emarginatusque, angulis anticis rotundatis; lateribus rotundatus, basi truncatus. angulis posticis rectis; disco modice convexus, margine depresso, versus basin crescente, obsolete punctato, subpellucido; basi toto subtilius dense punctato; impressionibus transversis distinctis, medio angulatis; linea longitudinali tenui utrinque abbreviata, profunda; basalibus oblongis punctatis, profundis, a margine discretis. *Elytra* ovalia, apice vix sinuata, margine picescentia, striata, interstitiis paulo convexis, 3<sup>io</sup> postice uni-

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† απλός—simplex. κεντρὸν—spina.

punctato: serie submarginali punctorum non interrupta: epipleuræ rufo-piceæ. *Pedes* nigro-picei, tibiis tarsisque rufo-piceis.

Præcedente convexior, forma elliptica, non ovali, thorace lateribus magis rotundatis, impressionibus profundioribus facile distinguendus.

18. \* **obscurus.** *Ellipticus convexiusculus, niger, parum nitidus: thorace quadrato, antice parum angustato, lateribus modice rotundatis, postice subforeculato, foreis obsolete punctatis; elytris tenue striatis, interstitiis paulo convexis, 3<sup>io</sup> unipunctato; antennarum basi, pedibusque rufis; palpis piceis.* Long. .27, lat. .11. Habitat in provincia Massachusetts, a Dom. Harris amice datus.

Ellipticus, convexiusculus, niger, parum nitidus. *Caput* leve. *Palpi* picei, *antennæ* obscuræ, articulis 2 basalibus pallidioribus. *Thorax* capite duplo latior, latitudine summa sesqui brevior, antice paulo angustatus, leviter emarginatus, angulis anticis rotundatis; lateribus leviter rotundatus, basi recte fere truncatus, angulis posticis rectis rotundatis; margine picescente; impressione transversa anteriore angulata distincta; linea longitudinali tenui, utrinque abbreviata, basalibus parvis oblongis, punctis paucis obsoletis. *Elytra* apice sinuata; tenue-striata, interstitiis leviter convexis, 3<sup>io</sup> unipunctato; serie punctorum submarginali non interrupta. *Pedes* rufi.

19. **lætus.** Dej. Sp. Gen. Habitat in provinciis australibus.

20. **lugubris.** Dej. Sp. Gen. (Selenophorus)

Specimina plura ad cataractam Niagara mense Maio obtinui; ♂, articulo basali tarsorum anticorum parum dilatato; tarsisque subtus dense breviter pilosis, papillis ordine non dispositis cum Anisodactylis congruit: tibiis anticis calcar est simplex gracileque.

EURYTRICHUS.† nov. gen.

CORPUS ovale, Calathum similans, alatum.

CAPUT mediocre, antice subobtusum, oculis majusculis prominulis.

MANDIBULÆ incurvatæ, apice rotundatæ.

LABRUM quadratum, latitudine paulo brevius, angulis anticis rotundatis.

MENTUM breve, modice concavum, profunde emarginatum, medio dente valido, obtusoque munitum; angulis anticis subacutis.

MAXILLÆ, et LIGULA invisæ.

PALPI tenuiusculi; labiales articulis æqualibus, maxillares articulo 2<sup>do</sup> longiore, crassioreque; articulo ultimo præcedente paulo longiore; levissime ovali, apice paulo truncato.

ANTENNÆ subelongatæ, filiformes, articulo 2<sup>do</sup> reliquis duplo brevioribus; reliquis æqualibus, 1<sup>mo</sup> vix crassiore, ultimo apice rotundato.

THORAX quadratus, antice paulo angustatus, postico truncatus.

ELYTRA ovalia, apice vix sinuata.

SCUTELLUM parvum.

PEDES mediocres; tibiæ sicut in Harpalo; calcaro terminali anticarum simplici.

TARSI ♂ *antici* sicut in Spongopus, articulo 1<sup>mo</sup> paulo latiore; ♂ *intermedii* minus dilatati, articulo 1<sup>mo</sup> subtus non pubescente, reliquis sicut in tarsi anticis; *postici* articulis longitudine decrescentibus, ultimo præcedentes duos æquante.

UNGUES simplices.

1. *terminatus*. Say. Trans. Am. Phil. Soc. Vol. II. N. S.

♂ nonnunquam nitore viridi-æneo irroratus.

Habitat in Pennsylvania, et ad Rocky Mountains.

2. *testaceus*. Hald. Proc. Ac. Nat. Sc. Vol. II.

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*ungues*—latus, *gigli*—pilis, quasi tarsi ♂ subtus dense pilosis.



Habitat in Pennsylvania, minus frequens, a Dom. Melsheimer benevole datus.

3. *agilis*. Dej. Sp. Gen. (Harpalus.) Abundat in Georgia.

4. \* *nitidipennis*. *Oblongus, angustiusculus, obscure viridi-æneus, nitidus; thorace quadrato, postice subangustato, impressione transversa anteriore, basalibusque linearibus profundis; elytris nitidissimis, striatis, interstitiis planis; antennarum basi, pedibus palpisque rufis.* Long. '3, lat. '11. Specimen unicum ♂ in Georgia inventum.

Præcedentem refert, at angustior, et convexior.

Viridi-æneus, nitidus, capite thoraceque obscurioribus. *Caput* læve, impressionibus frontalibus punctiformibus. *Antennæ* articulis 3 basalibus rufo-testaceis, reliquis brunneo maculatis. *Palpi* rufi. *Thorax* capite sesqui latior, latitudine summa sesqui brevior, quadratus, antice posticeque truncatus, lateribus rotundatis, angulis posticis obtusis, non rotundatis, vix explanatis; disco convexiusculus, margine depresso; impressione transversa anteriore profunda, angulata, linea longitudinali tenui utrinque abbreviata, basalibus linearibus. *Elytra* parallela, apice parum sinuata, striata, interstitiis accurate planis; 3<sup>io</sup> unipunctato; serie punctorum submarginali medio interrupta. *Subtus* niger, *pedes* et trochanteres rufi.

5. \* *piceus*. *Ovalis latiusculus, depressus, piceus, nitidus, subtus rufo-piceus; thorace quadrato, antice angustato, margine leviter depresso; elytris tenue-striatis, interstitiis planis; 3<sup>io</sup> unipunctato; ore rufo-picco, antennarum basi, palpis, pedibusque rufis.* Long. '41, lat. '17. Specimen unicum ♂ NovEboraci inventum.

Præcedentibus major, latior, et depressior.

Piceus nitidus, subtus totus rufo-piceus. *Caput* læve, impressionibus frontalibus punctiformibus, ore rufo-picco. *Antennæ* rufo-piceæ, basi rufæ. *Thorax* capite duplo latior, latitudine summa sesqui brevior, subquadratus, apice basique truncatus, antice angustatus, angulis anticis rotundatis, posticis rectis, non

rotundatis, lateribus rotundatus; versus basin late depressus, obsoletissime rugoso-punctatus; impressione transversa anteriore duplicata, posteriore recta; linea longitudinali vix distincta, basalibus latis vix distinctis, cum linea recta longitudinali obsolete impressis. *Elytra* apice leviter sinuata, tenue-striata, interstitiis planis, 3<sup>io</sup> postice unipunctato, stria rudimentali longa; serie punctorum submarginali medio vix interrupta. *Epipleura* rufo-piceæ. *Pedes* rufi.

6. *dichrous*. Dej. Sp. Gen. (Harpalus.)

*iricolor*. Say. Trans. Am. Phil. Soc. Vol. IV. Habitat in provinciis mediis.

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Subdivisio III.—*Harpalini*.

*Harpalidæ*.—p. Hope.

*Stenolophidæ*.—p. Hope.

CORPUS antice paulo angustatum.

CAPUT postice leviter retractum.

PALPI articulo ultimo ovali, truncato plerisque; in aliis apice attenuato acuminatoque.

TARSI antiqui et intermedii ♂ plus minusve dilatati, subtus papillarum serie duplici dense vestiti.

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SELENOPHORUS. Dej.

1. *stigmaeus*. Germ. Ins. Nov. (Harpalus.)

*impressus*. Dej. Sp. Gen. Habitat in provinciis australibus.

2. \* *iripennis*. *Oblongus, depressus, niger, pernitidus; thorace quadrato, angulis posticis obtusis, subrotundatis, basi subtiliter punctato; clytris cyaneo-micantibus, versus marginem subtiliter sparse punctatis; striatis, seriebus punctorum solitis distinctis: antennis, palpis, pedibusque ferrugineis.* Long. .38, lat. .15. Habitat in Carolina, et NovEboraci minus frequens; a Dom. Willcox benevole datus.

*Oblongus, depressus, niger pernitidus. Caput* valde obtusum, labro piceo; impressionibus frontalibus parvis, sutura transversa

distincta. *Antennæ palpique* rufo-ferruginei. *Thorax* capite paulo latior, latitudine fere sesqui brevior, quadratus, antice paulo emarginatus, angulis anticis subacutis, lateribus modice rotundatus, basi levissime emarginatus, angulis posticis obtusis, subrotundatis : disco fere planus, subtiliter rugosus, antice posticeque striatus, tenuissime marginatus ; impressione transversa anteriore arcuata, linea longitudinali utrinque paulo abbreviata, basalibus latis, indistinctis, subtiliter punctatis. *Elytra* thoraco non latiora, apice parum sinuata, cyaneo-micantia ; versus marginem sparse punctata, striata, striis postice exaratis ; rudimentali brevi distincta : interstitiis parum convexis, seriebus punctorum solitis distinctis : serie submarginali medio late interrupta. *Subtus* niger, pedes, coxæ et trochanteres ferruginei.

3. *gagatinus*. Dej. Sp. Gen.

*maurus*. Hald. Proc. Ac. Nat. Sc. Vol. I.

*productus*. Mels. MSS. fide Harris.

Habitat in Pennsylvania et Massachusetts minus frequens. Long. '29, lat. '11.

Niger, nitidus : *caput* leve, labro, palpis, antennisque pallide piceis ; *thorax* latitudine paulo brevior, antice emarginatus, angulis anticis rotundatis, lateribus modice rotundatus, basi recte truncatus, angulis posticis obtusis leviter rotundatis ; disco subplanus, indistincte rugosus : impressione transversa anteriore arcuata distincta, posteriore minus profunda, linea longitudinali utrinque abbreviata, basalibus parvis rotundatis, non profundis, parce subtilius punctatis ; *elytra* parallela, apice vix sinuata, striis profundis, interstitiis planiusculis ; seriebus punctorum solitis satis distinctis ; stria 8<sup>va</sup> postice excavata ; serie submarginali punctis anticis indistinctis ; femora nigro-picea, tibiæ et tarsi rufo-picei.

4. *parallelus*. Hald. Proc. Ac. Nat. Sc. Vol. I.

*Angustior, niger subnitidus, antennis palpisque pallide rufo-piceis, thorace subquadrato, angulis posticis rotundatis, basi leviter bisinuato ; elytris seriebus*

*punctorum* vix observandis. Long. '29, lat. '10. Specimen unicum in Territorio Missouriensi inveni; habitat etiam in Pennsylvania minus frequens. Mus. Dom. Melsheimer.

Præcedente multo angustior, et magis parallelus. Niger, subnitidus, *caput* læve, impressionibus punctiformibus; *antennæ* et *palpi* pallidi. *Thorax* latitudine paulo brevior, antice subangustatus, emarginatus, angulis rotundatis; lateribus modice rotundatus, basi leviter emarginatus, bisinuatusque, angulis posticis obtusis, modice rotundatis; disco leviter convexus, transverse rugosus; margine versus angulos posticos anguste depresso punctatoque; impressionibus transversis fere nullis, linea longitudinali tenuissima, utrinque abbreviata, basalibus vix distinctis; basi toto subtilissime striato punctatoque. *Elytra* parallela, apice vix sinuata, striata, stria rudimentali longa distinctaque; interstitiis basi fere planis, postice convexas; seriebus punctorum solitis fere obsoletis; serie marginali medio valde interrupta: *pedes* nigro-picei, tibiis tarsisque minus obscuris.

5. \* *tenebrosus*. *Sublongatus, subconvexus, niger nitidus; antennis palpisque ferrugineis; thorace subquadrato angulis posticis rotundatis, basi leviter bisinuato, margine postice explanato; elytris striatis, punctorum seriebus solitis distinctis, pedibus nigro-piceis.* Long. '26, lat. '10. Habitat ad Rocky Mountains.

Præcedenti valde affinis, at magis convexus.

Niger nitidus; *caput* læve, impressionibus frontalibus punctiformibus; labrum, *antennæ*, palpique ferruginea. *Thorax* latitudine vix brevior, antice vix emarginatus, lateribus rotundatus, angulis posticis obtusis, rotundatis, basi levissime bisinuato; disco subconvexus, rugosus, margine versus angulos posticos leviter explanato, nunquam subtilius punctato, linea longitudinali antice abbreviata, distincta; impressione transversa anteriore interdum modice distincta, arcuata; basalibus nullis. *Elytra* apice non sinuata, profundo striata, magis versus apicem, stria rudimentali longa distinctaque; interstitiis modice convexas,

seriebus punctorum solitis satis distinctis; serie submarginali medio late interrupta. *Pedes* nigro-picei, tibiis tarsisque minus obscuris.

6. \* *varicolor*. *Niger, pernitidus, ore, antennis, pedibusque testaceis; thorace lateribus valde rotundato, basi subtiliter punctato; elytris cyaneo-micantibus, interstitiis subplanis seriebus punctorum indistinctis.* Long. .26, lat. .11. Habitat in Pennsylvania et Georgia minus frequens.

Oblongus, angustiusculus, niger, pernitidus. *Caput* laeve, impressionibus fere nullis, ore antennis palpisque rufo-testaceis. *Thorax* latitudine sesqui brevior, subquadratus, antice leviter emarginatus, lateribus valde rotundatus, postice leviter retracts, angulis posticis obtusis valde rotundatis, basi levissime emarginatus; disco fere planus; impressionibus transversis fere nullis, linea longitudinali tenuissima, integra; basalibus latis, minime profundis, subtiliter punctatis. *Elytra* thorace vix latiora, parallela, postice rotundata, viridi cyaneoque micantia, striata, stria rudimentali longa distincta; interstitiis subplanis, seriebus punctorum solitis inconspicuis, serie submarginali medio late interrupta. *Pedes* rufo-testacei.

7. \* *viridescens*. *Oblongus, niger, obscure viridescens, thorace quadrato, angulis posticis rotundatis, impressionibus basalibus non profundis; elytris profunde striatis, interstitiis convexis, seriebus punctorum solitis fere obsoletis: antennis, palpis; tibiis, tarsisque rufo-piceis.* Long. .3, lat. .11. Habitat in Insula Longa NovEboraci, a Dom. Brevoort amice datus.

Habitus omnino Eurytrichi nitidipennis. Oblongus, niger, obscure viridescens, pernitidus. *Caput* obtusum, impressionibus frontalibus vix distinctis: *antennae palpique* rufo-picei. *Thorax* capite duplo latior, latitudine sesqui brevior, quadratus, apice vix emarginato, basi fere recte truncato, lateribus rotundatus, angulis posticis obtusis rotundatis: disco parum convexus, tenuiter marginatus; impressionibus transversis fere nullis, linea

longitudinali postice paulo abbreviata, basalibus latis, minime profundis, obsolete punctatis, basi medio obsolete rugose punctato. *Elytra* thorace non latiora, apice paulo sinuata, profunde striata, striis postice profundioribus; rudimentali subelongata; interstitiis paulo convexis, seriebus punctorum solitis fere obsoletis, vix distinctis: serie submarginali punctorum ocellatorum medio late interrupta. *Subtus* niger, femoribus nigro-piceis: trochanteres postici, tibiæ, tarsique rufo-picei.

8. **pedicularius**. Dej. Sp. Gen. Habitat ubique minus frequens.

9. **troglydites**. Dej. ibid. Habitat ubique sat frequens.

Præcedenti simillimus, thorace tamen ad latera minus rotundato, basi minute rugoso, punctatoque, impressionibus basalibus profundioribus, seriebusque punctorum multo distinctioribus, dignoscendus; in ambobus elytra versus marginem subtilissime punctata sunt, pubesque rara, depressa, grisea vix conspicua vestita.

10. **\*ærcus**. *Oblongus ærcus nitidus; thorace subquadrato, margine leviter depresso, explanatoque, basalibus parvis, parce subtiliter punctatis, clytris interstitiis leviter convexis, seriebus punctorum satis distinctis; antennarum basi pedibusque ferrugineis*. Long. .20, lat. .08. Habitat in Territorio Missouriensi.

*Oblongus ærcus, nitidus. Caput læve, impressionibus fere nullis. Antennæ obscuræ, articulis duobus basalibus pallidis; palpi mandibulæque ferruginei, apice picei. Thorax subquadratus, latitudine brevior, angulis anticis rotundatis, lateribus modice rotundatus, basi fere recte truncatus, angulis posticis obtusis leviter rotundatis; disco subconvexus, margine versus basin leviter explanato, punctis paucis indistinctis notato; impressionibus transversis nullis, linea longitudinali antice abbreviata, basalibus parvis, parce punctatis. Elytra thorace vix latiora, parallela, apice leviter sinuata, apice dense subtiliter punctata; striata, striis postice profundioribus, interstitiis leviter*



convexis, punctorum seriebus solitis distinctis; stria rudimentali brevi; *pedes* ferruginei.

A præcedentibus duobus thoracis margine distincto explanato, elytrisque apice distincte punctatis dignoscendus. *Elytra* (sicut in illis) versus marginem subtilissime punctata, pubeque rara brevi vestita sunt.

11. *\*planipennis*. *Nigro-æneus, nitidus; thorace subquadrato, margine postice explanato, punctatoque, impressionibus basalibus parvis, subtiliter punctatis; elytris tenue-striatis, interstitiis accurate planis, seriebus solitis indistinctis, intermedia evidentiore, pedibus, antennisque ferrugineis*. Long. .20, lat. .09. Specimen unicum prope Long's Peak, Rocky Mountains, legi.

Oblongus; Nigro-æneus, nitidus. *Caput* læve, sutura frontali distincta, punctoquo prope labrum utrinque impresso; antennæ palpique rufi. *Thorax* subquadratus, latitudine sesqui brevior, antico non angustatus, apice basique truncatus, lateribus rotundatus, angulis posticis obtusis minus rotundatis; disco subconvexus, margine versus angulos posticos explanato, punctatoquo; impressionibus transversis, lineaque longitudinali fere nullis; basalibus latis, indistinctis, subtiliter punctatis. *Elytra* thorace vix latiora, parallela, vix sinuata, ad apicem marginemque punctata; tenue-striata, interstitiis accurate planis; serie punctorum interna vix distincta, secunda evidentiore. *Pedes* ferruginei.

12. *ovalis*. Dej. Sp. Gen. Habitat in provinciis australibus.  
 13. *ellipticus*. Dej. Sp. Gen. Habitat in provinciis australibus et ad Rocky Mountains.  
 14. *pulicarius*. Dej. ibid. Habitat cum priore.  
 15. *granarius*. Dej. ibid. Habitat in provinciis australibus.

## PANGUS. Ziegler.

1. *caliginosus*. Fabr. Syst. Eleuth. Abundat in provinciis mediis, occidentalibus, et australibus.

## HARPALUS. Lat.

1. *pennsylvanicus*. DeGeer.

*bicolor* var. Dej. Sp. Gen. Habitat in provinciis australibus.

A sequente, thorace ad basin marginemque subtilius confertissime punctato, impressionibus basalibus rotundioribus profundioribusque, cum margine minus confluentibus, interstitiis elytrorum 4<sup>to</sup> et 6<sup>to</sup> punctatis, præcipue versus basin; corporeque toto subtus ferrugineo-flavo facile distinguendus.

2. *bicolor*. Fabr. Syst. Eleuth.: Dej. Sp. Gen. Abundat ubique.

3. \* *compar*. *Oblongus, niger, nitidus, thorace subquadrato, marginato, margine versus basin non dilatato, angulis posticis subobtusis, leviter explanatis, densius subtiliter punctatis; basalibus latis non profundis; elytris striatis, ad apicem leviter sinuatis, antennis, palpis, mandibularum basi, pedibusque ferrugineis.* Long. 62—50, lat. 24—19. Habitat cum priore.

Ad hanc speciem forte referendus est *Harpalus faunus* Dej. Sp. Gen.; qui a specie Sayo descripta plane differt. Vide Am. Phil. Trans. Vol. II. N. S.

Statura omnino præcedentis, oblongus, niger nitidus. *Caput* læve, impressionibus frontalibus minutis punctiformibus, sutura frontali distincta; oculis modice prominulis: mandibulæ picæ, basi ferrugineæ. *Antennæ palpique* ferruginei. *Thorax* latitudine paulo brevior, antice leviter emarginatus, angulis anticis subdeflexis, lateribus usque ad medium modice rotundatis, dein rectis, levissime retractis; basi truncatus, nonnunquam levissime emarginatus, angulis posticis obtusis, leviter explanatis, late dense subtiliter punctatis; disco subconvexus, tenuiter marginatus,

margine versus basin non dilatato; impressione transversa anteriore indistincta, angustata, a margine remota, posteriore subrecta, nonnumquam obsoleta, linea longitudinali antice abbreviata, basalibus latis indistinctis, subtilius dense punctatis. *Elytra* thorace non latiora, parallela apice leviter sinuata; striata, interstitiis vix convexis; exterioribus ♂ impunctatis, in ♀ nonnumquam subtilissimo punctatis. *Abdomen* nonnumquam medio rufescente; *pedes* ferruginei.

A *Harpalo* bicolore impressionibus frontalibus minoribus, thorace tenuius marginato, basi subtilius densius punctato; impressionibus minus profundis; elytrorum interstitiis minus convexis, exterioribus vix punctatis, satis distinctus videtur.

4. *erythropus*. Dej. Sp. Gen. Habitat NovEboraci.

Præcedente sesqui minor, thorace ad basin minus subtiliter punctato, elytrisque postice magis sinuatis distinctus.

5. *faunus*. Say. Trans. Am. Phil. Soc. Vol. II. N. S.

*badius*. Dej. Sp. Gen. Habitat in provinciis mediis.

A præcedentibus thoracis lateribus fere rectis, parallelisque, versus basin levissime sinuatis distinctus.

6. \**longicollis*. *Oblongus, niger, nitidus, thorace latitudine non brevior, postice leviter angustato, tenuiter marginato, basi dense punctato, late indistincteque impresso; elytris striatis, interstitiis externis punctatis, antennis, palpis, pedibusque ferrugineis*. Long. .55, lat. .19. Habitat NovEboraci minus frequens.

Præcedentibus angustior, niger, nitidus. *Caput* læve; impressionibus frontalibus punctiformibus; sutura frontali externa obsoleta, oculis modice prominulis. *Antennæ palpi*que ferruginei. *Thorax* capite paulo latior, latitudine non brevior, antice leviter emarginatus, lateribus usque ad medium rotundatis, dein rectis, modice retractis, basi recte truncatus, angulis posticis leviter explanatis, obtusis, non rotundatis; disco parum convexus, margine tenui depresso, versus basin evanescente; impressionibus transversis indistinctis, anteriore angulata, linea

longitudinali postice abbreviata, basalibus parvis, non profundis, cum angulis posticis dense punctatis. *Elytra* thoracis basi paulo latiora, parallela, apice leviter sinuata, striata, interstitiis modice convexis; externis usque ad 4<sup>tum</sup> plus minusve punctulatis, serie punctorum submarginali medio non interrupta. *Pedes* ferruginei.

7. *spadicus*. Dej. Sp. Gen.

*mutabilis*. Haldeman Proc. Ac. Nat. Sc. Vol. I.  
(Ophonus.)

Habitat NovEboraci minus frequens. Specimen e Pennsylvania a Dom. Haldeman sub nomine *mutabilis* benevole missum, cum alio mihi lecto exacte convenit, sutura frontali excepta, quæ minus distincta videtur.

8. *erraticus*. Say. Trans. Am. Phil. Soc. Vol. II.: Dej.  
Sp. Gen.

9. *viridis*. Say. *ibid*.

*assimilis*. Dej. Sp. Gen. Habitat ad Newport, provinciae Rhode Island.

10. *vulpeculus*. Say. Trans. Am. Phil. Soc. Vol. II.  
N. S.

*nigripennis*. Dej. Sp. Gen. Habitat in provinciis mediis minus frequens.

11. *rotundicollis*. Kirby, F. B. A. Vol. IV. Specimen unicum prope Long's Peak, Rocky Mountains, cum sequente inventum.

12. *amputatus*. Say. Trans. Am. Phil. Soc. Vol. IV.  
N. S.

*Stephensii*. Kirby, F. B. A. Vol. IV. Habitat ad Rocky Mountains. Variat niger nitidissimus, purpureus, viridi-purpureus, vel etiam æneo-viridis.

13. \* *megacephalus*. *Oblongus, nigro-piceus, nitidus, capite magno, thorace non angustiore, hoc subquadrato, impressionibus basalibus profundis, leviter punctatis,*

*clytris apice vix sinuatis, profunde striatis, interstitiis leviter convexis, antennis, palpis, pedibus, epipleurisque ferrugineis.* Long. .125, lat. .35, Habitat ad Lacum Superiorem.

Oblongus, nigro-piceus, nitidus. *Caput* magnum subquadratum, pone oculos vix retractum, keve, impressionibus frontalibus parvis, foveolæformibus; sutura frontali distincta. *Thorax* subquadratus, latitudine paulo brevior, lateribus parum rotundatus, antice posticeque truncatus, angulis posticis leviter obtusis rotundatisque; disco leviter convexus, tenuiter marginatus; impressione transversa anteriore a margine remota, arcuata; linea longitudinali profunda, antice abbreviata, basalibus parvis, profundis, leviter punctatis; punctis ad angulum extendentibus. *Elytra* obscure castanea, parallela, apice non sinuata, profunde striata; interstitiis leviter convexis, serie submarginali punctorum medio non interrupta. *Antennæ, palpi, epipleuræ pedesque* ferruginei.

14. *herbivagus*. Say. Trans. Am. Phil. Soc. Vol. II. N. S. Dej. Sp. Gen.

Habitat ubique. II. erythropum (Dej.) refert; at dimidio minor, et thorace angulis posticis minus explanatis, subtilius punctatis, clytris apice non sinuatis.

15. \* *proximus*. *Oblongus, niger, vel nigro-piceus, thorace quadrato, postice punctato, angulis posticis obtusis, rotundatis; impressionibus basalibus latis, non profundis; clytris apice vix sinuatis, antennis, palpis, pedibusque ferrugineis.* Long. .35, lat. .15. Habitat ad Lacum Superiorem.

Statura omnino præcedentis. Niger, vel nigro-piceus, subnitidus. *Caput* keve, impressionibus frontalibus minutis; sutura frontali distincta: *palpi* picci, apice basique ferruginei, *antennæ* ferrugineæ. *Thorax* capite latior, latitudine brevior, subquadratus, antice emarginatus, angulis anticis rotundatis, lateribus paulo rotundatus, basi truncatus, angulis posticis obtusis, rotundatis; disco postice subplanus, versus angulos posticos subtilius

dense punctatus : impressionibus transversis fere nullis, linea longitudinali indistincta, utrinque paulo abbreviata; basalibus latis, non profundis. *Elytra* opaciuscula, thorace non latiora, et duplo longiora, apice rotundata, vix sinuata, striata, interstitiis subconvexis, 3<sup>io</sup> unipunctato; serie punctorum submarginali medio subinterrupta. *Pedes* ferruginei.

16. *pleuriticus*. Kirby, F. B. A. Vol. IV. Habitat ad Lacum Superiorem.

Statura fere præcedentis; thorace angulis posticis minus rotundatis, mandibulis rubro-piceis, epipleuris, palpisque ferrugineo flavis sat distinctus.

17. \* *foveicollis*. *Oblongus, nigro-piceus: thorace subquadrato; lateribus rotundato, deplanatoque, angulis posticis rotundatis, impressionibus basalibus, transverseque anteriore profundis; elytris striatis, interstitio 3<sup>io</sup> unipunctato; antennis palpis, pedibusque flavis; thoracis margine, epipleurisque rufo-piceis.* Long. .36, lat. .13. Habitat ad fines Aquilones, provincie Maine: a Dom. Brevoort amice datus.

Statura præcedentium 4. Nigro-piceus, nitidus. *Caput* læve: impressionibus frontalibus minutis; sutura frontali vix conspicua: *mandibula* basi piceæ. *Antennæ* palpique ferrugineo-flavi. *Thorax* capite sesqui latior, latitudine sesqui brevior, subquadratus, antice leviter emarginatus, angulis anticis rotundatis, lateribus rotundatis, angulis posticis obtusis rotundatis: disco minus convexus, transversim rugosus, margine depresso rufo-piceo: impressione transversa anteriore arcuata, valde profunda, linea longitudinali profunda, antice abbreviata, basalibus rotundatis, profundis, a margine depresso discretis. *Elytra* parallela, apice vix sinuata, striata, interstitiis vix convexis, 3<sup>io</sup> postice unipunctato: epipleuræ rufo-piceæ. *Pedes* rufo-flavi.

18. \* *ventralis*. *Oblongo-ovalis, subdepressus, supra nigro-piceus nitidus, subtus picco-ferrugineus; thorace quadrato, lateribus antice rotundatis, angulis posticis rectis,*



*impressionibus basalibus linearibus; clytris tenuistriatis, interstitiis planis, ore, antennis, pedibusque rufo-piceis.* Long. .35, lat. .15. Habitat prope Long's Peak.

Oblongo-ovalis, parallelus, subdepressus: supra nigro piceus. *Caput* læve, sutura frontali distincta, impressionibus frontalibus minutis, ore, antennis, palpisque rufo-piceis. *Thorax* capite sesqui latior, latitudine non brevior, quadratus, antice vix emarginatus, lateribus antice rotundatis, postice subrectis, basi truncatis, angulis posticis accurate rectis, obsolete explanatis: impressionibus transversis fere nullis, linea longitudinali tenui, basalibus linearibus, non profundis. *Elytra* apice leviter sinuata, striata, striis postice profundioribus, interstitiis planis. *Subtus* totus dilute rufo-piceus.

α. Paulo major, subtus niger, antennis, palpis, pedibusque rufo-piceus. Specimen unicum cum prioribus lectum.

19. \* *ellipsis*. *Subdepressus, niger, ♂ nitidus, ♀ nitidiuscula, thorace quadrato, lateribus æqualiter paulo rotundatis, basi truncato; impressionibus basalibus rectis, brevibus, clytris striatis, interstitiis planiusculis; antennis palpis, tarsisque rufis.* Long. .30, lat. .13. Habitat in Territorio Missouriensi.

Habitus ellipticus, subdepressus *Selenophori* cujusdam. *Caput* læve, impressionibus frontalibus punctiformibus, sutura transversa, distincta. *Antennæ, palpi*que ferruginei. *Thorax* capite sesqui latior, latitudine summa paulo brevior, quadratus, antice leviter emarginatus, lateribus regulariter paulo rotundatis, basi obsolete emarginato, angulis posticis fere rectis, paulo rotundatis; impressionibus transversis fere nullis, anteriore angulata; linea longitudinali tenuissima utrinque abbreviata, basalibus rectis, brevibus, linearibus. *Elytra* thorace non latiora, apice paulo sinuata, striata, interstitiis planiusculis (in ♀ accurate planis) 3<sup>io</sup> postice unipunctato. *Pedes* nigri, tarsis ferrugineis.

α. Antennis articulis 2 basalibus rufis, reliquis fuscis; tarsis nigro-piceis. Habitat cum priore, et in Louisiana.

20. **nitidulus**. Chaud. Ball. de la Soc. Imp. des Nat. de Moscou. 1841.

*Ellipticus, piceus, pernitidus, thorace quadrato, antice leviter angustato, postice truncato, angulis posticis obtusiusculis; impressionibus basalibus brevibus linearibus; elytris profunde striatis, interstitiis leviter convexis, 3<sup>io</sup> unipunctato, stria rudimentali brevi; antennis, palpis, pedibusque ferrugineis: palpis apice non truncatis, fere acutis.* Long. .25, lat. .11.

Habitat in provinciis australibus et occidentatibus; a Dom. Zimmerman sub nomine *amaroides* missus.

21. \* **varicornis**. Oblongo-ovalis, niger, nitidus, subdepressus, thorace quadrato, breviusculo, antice subangustato, angulis posticis rectis, leviter explanatis; impressionibus basalibus latis, non profundis, subtilius punctatis; elytris tenue-striatis, interstitiis leviter convexis, 3<sup>io</sup> unipunctato; antennis nigris, articulo 1<sup>mo</sup> ferrugineo: palpis apice subacutis. Long. .35, lat. .15. Habitat ad Lacum Superiorem.

Oblongo-ovalis, depressus, niger nitidus. *Caput* læve, impressionibus frontilibus punctiformibus, sutura frontali tenui, vix distincta; *palpi* apice non truncati, subacuti; *antennæ* nigræ, articulo 1<sup>mo</sup> ferrugineo. *Thorax* capite duplo latior latitudine summa sesqui brevior, antice subangustatus, lateribus modice rotundatus, basi recte truncatus, angulis posticis rectis, non rotundatis, leviter explanatis; impressionibus transversis fere nullis, linea longitudinali antice abbreviata, tenuissima; basalibus latis brevibus, medio fere cœuntibus, ab angulis explanatis discretis, non profundis, subtilissime sparse punctatis. *Elytra* apice paulo sinuata, tenue-striata, interstitiis leviter convexis, 3<sup>io</sup> postice unipunctato: stria rudimentali longa. *Pedes* nigri.

22. **nigerrimus**. Dej. Sp. Gen.

*nigrita*. Mels. MSS. Habitat in Pennsylvania, minus frequens: a Dom. Melsheimer benevole datus,

23. \* *rufimanus*. *Oblongus, niger nitidus*, (♀ *elytris opaciusculis*,) *thorace subquadrato, angulis posticis subobtusis, leviter explanatis, impressionibus basalibus profundiusculis, subtiliter punctatis; elytris striatis, interstitiis modice convexis, 3<sup>io</sup> postice unipunctato; antennis, palpis, tarsisque anticis rufo-piceis*. Long. ·43, lat. ·17. Habitat ad Lacum Superiorem.

*Crassiusculus, oblongus, niger nitidus*. *Caput* læve: impressionibus frontalibus parvis, rotundatis, sutura transversa distincta. *Antennæ, palpique* rufo-picei, hi apice truncati. *Thorax* capite sesqui latior, latitudine summa fere duplo brevior, quadratus, antice posticeque truncatus, lateribus rotundatus, angulis posticis obtusis, rotundatis, leviter explanatis; impressione transversa anteriore distincta, arcuata, linea longitudinali antice abbreviata, basalibus rotundatis, modice profundis, subtiliter dense punctatis. *Elytra* thorace non latiora, apice vix sinuata, in ♂ nitida, ♀ opaciuscula, striata (profundius in ♂) interstitiis paulo convexis, 3<sup>io</sup> postice unipunctato, stria rudimentali longa, recta. *Pedes* nigri, tarsi anticis rufo-piceis; intermediis ♂ dilatatis, articulis (sicut in præcedentibus) triangularibus.

24. \* *funestus*. *Crassiusculus, parallelus, niger nitidus; capite majusculo, thorace quadrato, lateribus rotundato, angulis posticis accurate rectis, leviter explanatis, impressionibus basalibus parvis, sparse punctatis; elytris striatis, interstitiis convexis, 3<sup>io</sup> unipunctato; antennis palpisque obscure piceis, his apice subacutis*. Long. ·50, lat. ·21. Habitat prope Long's Peak: Rocky Mountains.

*Crassiusculus, parallelus, niger nitidus*. *Caput* læve, majusculum; impressionibus frontalibus punctiformibus, sutura valde profunda; *antennæ palpique* obscure picei, hi apice subacuti. *Thorax* capite latior, latitudine summa duplo brevior, quadratus, lateribus antice modico rotundatis, angulis posticis accurate rectis, explanatis; disco subconvexus; impressione transversa

antere arcuata, indistincta, linea longitudinali tenuissima, antice abbreviata, basalibus parvis, brevibus, sparsè punctatis. *Elytra* obtusiuscula, apice leviter sinuata, thorace plus duplo longiora, striata; interstitiis modico convexis, 3<sup>io</sup> postice unipunctato, stria rudimentali longa. *Pedes nigri*: *tarsi* intermedi  $\sigma$  parum dilatati, subtus tamen papillis serio duplici (sicut in aliis) instructi.

Ad genus sequens transitionem facit hæc species anomala.

### GEOBÆNUS. Dej.

**MENTUM** dentatum, dente longo, integro.

**PALPI** apice acutiusculi, non truncati.

**TARSI** *antici*  $\sigma$  valde dilatati, articulis subtriangularibus angulis rotundatis, penultimo sub-bilobato.

*intermedi*  $\sigma$  non dilatati, vel parum dilatati, subtus papillis solitis serie duplici instructi.

**HABITUS** oblongus, subdepressus plerisque, raro subcylindrico-elongatus, *Agonoderum* fere similans.

Reliquis cum *Harpalo* congruit.

Species sequentes cum descriptione Dejeaniana (Sp. Gen. IV.) exacte congruunt. Genus tamen proprium verisimiliter efformare debent. Nam MM. Audouin and Brullé (Hist. Nat. des Ins. Tom. II. p. 447,) tarsos anticos  $\sigma$  dilatatos, penicello denso, integro in *Geobæno* vestitos esse dicunt, (sicut in *Anisodactylis*.) Species tamen subtus laudatæ ad *Harpalinos* veros referendæ sunt: tarsis  $\sigma$  dilatatis serio duplici papillarum penæformium instructis.

1. **autumnalis.** Say. Trans. Am. Phil. Soc. Vol. II. N. S. (Feronia.)

Habitat Novæboraci minus frequens.

2. \* **arenarius.** *Depressus, piceus, nitidus*: thorace postice subangustato, angulis posticis obtusis, non rotundatis, anguste explanatis, impressionibus basalibus linearibus profundis; *elytris* striatis, interstitiis fere planis; antennis, palpis, epipleuris pedibusque pallide rufo-piceis.

Long. 23, lat. 10. Habitat in provinciis orientalibus : a Dom. Harris, sub nomine Amaræ arenariæ benevolè datus.

Præcedentem valde refert : colore piceo (non nigro,) thorace postice impresso, angulis posticis prominulis, explanatis, impressionibus basalibus longioribus, stria rudimentali nulla, interstitiisque elytrorum minus convexis facile distinctus.

Piceus nitidus. *Caput* majusculum, obtusum, impressionibus frontalibus vix conspicuis ; *labrum* latum, breve, emarginatum. *Antennæ palpique* pallide rufo-picei. *Thorax* capito paulo latior, latitudine sesqui brevior, quadratus, postice subangustatus, antice leviter emarginatus, lateribus modice rotundatis, postice obsolete sinuatis, basi truncatus, oblique ad latera, angulis posticis obtusis minime rotundatis, anguste deplanatis ; impressione transversa anteriore arcuata, posteriore valde profunda, arcuata ; linea longitudinali profunda, antice abbreviata : basalibus rectis, linearibus profundis. *Elytra* thorace paulo latiora, apice subattenuata, vix sinuata, striata, interstitiis vix convexis, stria rudimentali nulla : epipleuræ pedesque pallide rufo-picei.

3. *atrimedius*. Say. Trans. Am. Phil. Soc. Vol. II. N. S.  
(Feronia.)

*similis*. Kirby, F. B. A. Vol. IV. (Trechus.)

Habitus et statura Agonoderi pallipedis (Fabr.) Specimina duo ad Evansville, provinciæ Indianæ mense Maio legi.

4. *ruficrus*. Kirby loc. cit. sup. (Trechus.)

*badiipennis*. Hald. Proc. Ac. Nat. Soc. Vol. I.  
(Stenolophus.)

Thorax in hac specie rotundatus est, postice subangustatus, angulis posticis rotundatis, impressionibus basalibus latis, sparse punctatis : elytra striata, stria rudimentali brevissima, interstitiis planis, 3<sup>io</sup> postice unipunctato ; antennarum articulo 1<sup>mo</sup>, palpi, pedesque rufi ; femoribus leviter obscuratis. Cavendum est ne cum Stenolopho ochropezo (Say.) confundatur ; palpis apice paulo acutioribus, thorace angulis posticis paulo minus rotun-

datis; elytris interstitiis planioribus, infuscatis, minime coerulesco-micantibus dignoscatur; epipleuræ nigræ sunt, postice rufescentes, in *S. ochropezo* omnino rufæ.

Habitat in Pennsylvania minus frequens. Specimen unicum a Dom. Melcheimer benevole datum.

5. \* *lugubris*. *Nigro-piceus, nitidus, thorace quadrato, postice parum angustato, angulis posticis obtusis, rotundatis; elytris profunde striatis, interstitiis convexis, 3<sup>io</sup> unipunctato: antennarum articulo 1<sup>mo</sup>, palpis pedibusque ferrugineis.* Long. .23, lat. .09. Habitat ad Lacum Superiorem.

Habitus et affinitas summa *Stenolophi ochropezi* (Say.)

Oblongus, elongatus, nigro-piceus, nitidus. *Caput* læve, sutura frontali nulla, impressionibus frontalibus brevibus, rectis, profundis, antennarum articulo 1<sup>mo</sup> palporumque apice ferrugineo. *Thorax* subquadratus, lateribus modice rotundatus, postice leviter angustatus, basi fere recte truncatus, angulis posticis obtusis, leviter rotundatis, non explanatis; impressione transversa anteriore angulata, vix distincta, linea longitudinali profunda, integra; basalibus brevibus profundis, punctis paucis subtilibus notatis. *Elytra* latiora, profunde striata, interstitiis convexis, 3<sup>io</sup> postice unipunctato, stria rudimentali brevi; serie punctorum submarginali medio valde interrupta: *epipleuræ* nigro-piceæ. *Pedes* rufo-ferruginei.

6. *tibialis*. Kirby, F. B. A. Vol. IV. (*Trechus*.) Habitat ad Lacum Superiorem minus frequens.

Præcedente minor, crassiusculus, thorace lateribus rotundato, angulis posticis fere rectis; impressionibus basalibus rectis, linearibus; clytrorum interstitiis paulo convexis; antennarum articulo 1<sup>mo</sup>, palpis, tibiis, tarsisque rufo-ferrugineis.

7. \* *quadricollis*. *Oblongus, depressus, niger nitidus; thorace quadrato, lateribus vix rotundato, angulis posticis accurate rectis, basalibus rectis, linearibus; elytris striatis, interstitiis planis, 3<sup>io</sup> unipunctato, antennarum*



*articulo 1<sup>mo</sup>, palporumque apice piceo-rufis.* Long. .22, lat. .08. Specimen unicum ad Lacum Superiorem inventum.

Oblongus depressus, niger, nitidus. *Caput* læve, sutura frontali distincta, impressionibus frontalibus brevibus, profundis; *antennæ* nigrae, articulo 1<sup>mo</sup> subtus rufo-piceo; *palpi* picei, apice rufi. *Thorax* capite paulo latior, latitudine vix brevior, quadratus, antice leviter emarginatus, lateribus parum rotundatis, basi truncatus, oblique ad latera, angulis posticis rectis non rotundatis; impressione transversa anteriore angulata, distincta; linea longitudinali integra, profunda; basalibus rectis, profundis, linearibus. *Elytra* thorace latiora, apice tenuiter piceo-marginata, parum sinuata, striata, interstitiis fere planis, 3<sup>io</sup> unipunctato; stria rudimentali brevi, vix distincta. *Pedes* nigri, *tibiæ* basi piceæ.

8. \* *cordicollis*. *Nigro-piceus, nitidus, thorace postice leviter retracto, angulis posticis obtusis, impressionibus basali-bus nullis; elytris striatis, stria rudimentali nulla, antennarum articulo 1<sup>mo</sup>, palporum apice, pedibusque rufis.* Long. .20, lat. .07. Habitat ad Lacum Superiorem minus frequens.

Oblongo-elongatus, nigro-piceus, nitidus. *Caput* læve, subconvexum, striis frontalibus brevibus obliquis, sutura vix distincta. *Antennæ* articulo 1<sup>mo</sup> rufo-ferrugineo, reliquis brunneis, obscuris. *Palpi* rufi, articulo 2<sup>ndo</sup>, 3<sup>io</sup>que basi piceis. *Thorax* capite sesqui latior, latitudine summa paulo brevior. antice truncatus, postice leviter rotundatus, lateribus valde rotundatus, postice retractus, angulis posticis obtusis; convexus, lævis: impressionibus transversis nullis, linea longitudinali tenuissima vix observanda, basalibus fere nullis. *Elytra* thorace latiora parallela, apice rotundata, non sinuata, striata, interstitiis leviter convexis; stria rudimentali nulla; epipleuræ postice rufo-piceæ, *Subtus* nigro-piceus, pedibus rufo-ferrugineis.

9. *rupestris*. Say. Trans. Am. Phil. Soc. Vol. II. N. S. (Trechus.)

*elongatulus*. Dej. Sp. Gen. (Acupalpus.)

*flavipes*. Kirby. F. B. A. (Trechus.) Abundat ubique.

Colore a rufo, ad piceum, vel etiam nigro-piceum variat.

Varietas picea, elytris rufo-marginatus, a Sayo (Trans. Am. Phil. Soc. Vol. IV. N. S.) sub nomine *Stenolophi cincti* descripta est.

10. \* *congener*. *Elongatus, subdepressus, piceus nitidus*:  
*capite, abdomine, clytrisque obscurioribus; thorace ovato,*  
*angulis posticis explanatis, impressionibus basalibus*  
*latis, non profundis, obsolete punctatis, clytris striatis,*  
*interstitiis subplanis, antennarum articulis 3, palpis,*  
*epipleuris, pedibusque testaceis.* Long. .19, lat. .06.  
 Habitat ad Rocky Mountains minus frequens. ♀

Ad hanc speciem forte referendus est *Acupalpus debilipes* (Say. Trans. Am. Phil. Soc. Vol. IV. N. S.) sed insectum ejus nigrum vel nigro-piceum erat; verisimiliter colore variat.

Statura et summa affinitas præcedentis. *Elongatus, piceus nitidus*. *Caput* obscurum, læve, impressionibus frontalibus obliquis brevibus, sutura distincta. *Antennæ* obscuræ, articulis 3 basalibus, cum palpis testaceis. *Thorax* capite paulo latior, latitudine non brevior, rotundato-quadratus, postice parum angustatus, angulis posticis obtusis explanatis, basi leviter rotundatus; disco minus convexus, tenuiter marginatus; impressione transversa anteriore arcuata, linea longitudinali integra, basalibus latis rotundatis, non profundis, obsolete punctatis. *Elytra* obscura, striata, stria rudimentali nulla; interstitiis fere planis. *Pedes*, cum epipleuris rufo-testacei.

11. \* *neglectus*. *Elongatus, niger nitidus, thorace subquad-*  
*rato, angulis posticis valde rotundatis; impressionibus*  
*basalibus latis, non profundis, sparse punctatis; clytris*  
*striatis, interstitiis paulo convexis, 3<sup>io</sup> unipunctato; an-*  
*tennarum articulis 2, palpis, pedibusque pallidis.* Long.  
 .12, lat. .05. Specimen unicum, ad insulam Macki-  
 naw legi.

Præcedente duplo minor. Niger nitidus. *Caput* læve, impressionibus frontalibus obliquis, profundis; *palpi* pallidi; *antennæ* obscuræ, articulis 2 basalibus pallidis. *Thorax* latitudine non brevior, antice vix emarginatus, basi leviter rotundatus, postice paulo angustatus, lateribus modice rotundatus, angulis posticis leviter explanatis, valde rotundatis; impressionibus transversis indistinctis, linea longitudinali profunda, integra, basalibus latis, rotundatis, non profundis, cum angulis explanatis confusis, sparse obsolete punctatis. *Elytra* parallela, apice rotundata, non sinuata, profunde striata, interstitiis leviter convexis, 3<sup>io</sup> unipunctato, stria rudimentali nulla. *Pedes* rufo-testacei, postici rufo-picei, femoribus obscurioribus.

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GYNANDROPUS. Dej.

1. *hyla c i s*. Say. Trans. Am. Phil. Soc. N. S. Vol. II. (Harpalus.)

*a m e r i c a n u s*. Dej. Sp. Gen. Habitat in provinciis mediis, sub cortice arborum emortuarum minus frequens.

- 2 \* *e l o n g a t u s*. *Angustatus, niger nitidus; thorace basi punctulato, angulis posticis obtusis, vix rotundatis, leviter explanatis; elytris striis 2<sup>nda</sup>, 5<sup>ta</sup> et 7<sup>ma</sup> obsolete punctatis, antennis, palpis pedibusque rufis.* Long. .25, lat. .09. Habitat in Georgia rarissime.

Præcedente angustior, niger nitidus. *Caput, antennæ palpique* eadem. *Thorax* latitudine non brevior, antice posticeque truncatus, lateribus rotundatis, angulis posticis leviter explanatis, obtusis, parum rotundatis; disco convexus; impressionibus transversis nullis, linea longitudinali tenui, utrinque abbreviata; foveis basalibus parvis, punctatis. *Elytra* thorace paulo latiora, latitudine fere triplo longiora, parallela, postice modice rotundata, striata, striis 2<sup>nda</sup>, 5<sup>ta</sup> et 7<sup>ma</sup> seriebus punctorum parum distinctis; interstitiis lævibus, vix convexis.

## STENOLOPHUS. Dej.

§ 1. Tarsi intermedii ♂ anticis minus dilatati, ♀ mento dentato, dente minutissimo, qui sectione solum cernari potest.

1. *ochropezus*. Say. Trans. Am. Phil. Soc. Vol. II. N.S. (Feronia): Dej. Sp. Gen. Abundat ubique.

2. \* *convexicollis*. *Nigro-piceus, nitidus, thorace subrotundato, angulis posticis valde rotundatis, leviter explanatis; impressionibus basalibus sparse punctatis; elytris thorace latioribus, striatis, interstitiis convexis, 3<sup>io</sup> unipunctato; antennarum articulis duobus, palpis, thoracis elytrorumque margine tenui, pedibusque rufo-testaceis.* Long. .21, lat. .07. Habitat ad Rocky Mountains.

Oblongus, nigro-piceus, nitidus. *Caput* læve, impressionibus frontalibus brevibus, obliquis, *antennæ* obscuræ, articulis duobus testaceis; *palpi* testacei. *Thorax* latitudine non brevior, subrotundatus, postice vix angustatus, angulis posticis valde rotundatis, leviter explanatis; disco subconvexus, tenuiter rufo marginatus; impressionibus transversis nonnunquam vix distinctis, posteriore paulo profundiore; linea longitudinali tenui, postice abbreviata; basalibus latis, non profundis, sparse punctatis. *Elytra* thorace latiora, striata: interstitiis convexis, 3<sup>io</sup> unipunctato, stria rudimentali longa. *Epipleuræ, pedesque* rufo-testacei.

Præcedenti simillimus, at sesqui minor, thorace convexiore angulis posticis minus explanatis, elytris paulo latioribus distinctus videtur.

§ 2. Tarsi intermedii valde dilatati, mentum in sexu utroque edentatum.

3. *carbonarius*. Dej. Sp. Gen. (Harpalus.) Habitat in provinciis mediis sat frequens.

Ad hoc genus rite pertinet; est tamen ♂ articulus penultimus tarsorum dilatatorum profunde emarginatus bilobatusque, sicut in *Stenolophis* omnibus; mentum quoque edentatum est.

4. *dissimilis*. Dej. Sp. Gen. Habitat in provinciis australibus minus frequens: a Dom. Zimmerman amice missus.

Cavendum est ne pro Agonodero haberetur; a quo antennis longioribus facile dignoscendus.

5. \* *fuscipennis*. *Oblongus, niger, nitidus; clytris piccis, cyaneo-micantibus, profunde striatis, interstitiis convexis, 3<sup>io</sup> unipunctato; antennarum basi, palpis, thoracis margine, epipleuris, tibiis tarsisque testaceis; femoribus piccis*. Long. .27, lat. .10. Habitat NovEboraci.

Oblongus, subdepressus, niger nitidus. *Caput* læve, impressionibus frontalibus minutis, obliquis; *palpi* rufo-testacei; *antennæ* obscuræ, articulo 1<sup>mo</sup> testaceo. *Thorax* rotundato-quadratus, latitudine vix brevior, lateribus rotundatus, basi leviter rotundato, angulis posticis valde rotundatis; disco subplanus, transverse leviter rugosus, tenuiter testaceo marginatus; impressionibus transversis vix conspicuis, posteriore paulo profundiore; linea longitudinali tenui, utrinque abbreviata; basalibus latis oblongis, non profundis, sparse punctatis. *Elytra* picea, cyaneo-micantia, margine tenui rufo-testaceo; profunde striata, interstitiis modice convexis, 3<sup>io</sup> unipunctato, stria rudimentali longa, recta: epipleuræ testacæ. *Femora* picea, basi cum tibiis tarsisque testacea.

A sequente interstitiis elytrorum convexis satis distinctus.

6. *fuliginosus*. Dej. Sp. Gen.

*versicolor*. Kirby, F. B. A. Vol. IV. Habitat in provinciis mediis et occidentalibus. Variat antennarum articulo 1<sup>mo</sup> supra obscurato.

7. *plebejus*. Dej. Sp. Gen. Habitat ubique minus frequens.

8. *fuscatus*. Dej. ibid. Habitat in provinciis mediis, a Dom. Melsheimer benevole datus.

9. *conjunctus*. Say. Trans. Am. Phil. Soc. Vol. II. N. S. (Trechus.)

*miscellus*. Dej. Sp. Gen. (Acupalpus.)

*rotundicollis*. Haldeman Proc. Ac. Nat. Sc. Vol. I. (Acupalpus.)

Abundat ubique. Variat testaceus, et nigro-piceus : ♀ hujus speciei omnino cum *Stenolophis typicis* congruit. Habitus porro depressus, Acupalpo alienus, *Stenolophus plebejo* autem, vel potius *S. fuscato* supra laudatis simillimus.

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ACUPALPUS. Dej.

*TRECHUS.* auct. Anglicorum.

MENTUM medio dentatum.

TARSI ♂ parum dilatati.

PALPI articulo ultimo valde acuminato.

Genus sicut a Dejeanio formatum, valde heterogeneum erat, formas plures complectens ; mentum in aliis dentatum, in aliis simplex : tarsi ♂ anteriores in nonnullis valde dilatati (e. g. *misellus*), in nonnullis antici (e. g. *elongatus* ; ) in pluribus tamen vix dilatati (e. g. speciebus subtus citatis.)

1. \* *suturalis*. *Rufo-piceus nitidus, thorace, elytrorum margine suturaque dilutioribus, thorace postice subangustato, angulis posticis obtusis non rotundatis, basi punctato ; elytris profunde striatis, interstitiis convexis, stria rudimentali longa : antennarum basi, palpis, pedibusque testaceis.* [Long. '17, lat. '06. Habitat in Georgia minus frequens.

Sequente duplo major ; rufo-piceus nitidus. *Caput* læve, impressionibus frontalibus obliquis, profundis ; sutura frontali valde impressa ; puncto verticali notatum ; *palpi* testacei ; *antennæ* rufo piceæ, articulis 3 testaceis. *Thorax* rufus, capite latior, latitudine paulo brevior, quadratus, antice vix emarginatus, angulis anticis rotundatis, lateribus rotundatis, postice paulo angustatus, basi truncatus, obliquo ad latera ; angulis posticis obtusis non rotundatis, disco vix convexus, impressione transversa anteriore satis distincta, arcuata, a margine valde remota ; linea longitudinali integra ; basalibus rotundatis, dense punctatis. *Elytra* planiuscula parallela, apice rotundata, thorace paulo latiora, latitudine plus duplo longiora ; rufo-picea nitida,



margine tenui, suturaque rufis; striata, interstitiis convexis, stria rudimentali longa recta. *Subtus* rufo-piceus, *epipleuræ*, *pedesque* testacei.

2. *testaceus*. Dej. Sp. Gen. Habitat NovEboraci.

3. \* *micros*. Dej. Cat. *Rufo-testaceus, nitidus; thorace quadrato, postice leviter angustato, angulis posticis valde rotundatis, antice posticeque grosse punctato, elytris profunde striatis, interstitiis parum convexis, 3<sup>io</sup> unipunctato*. Long. .10, lat. .04. Habitat in provinciis australibus, a Dom. Zimmerman sub nomine *A. testacei* missus.

Præcedente minor, rufo-testaceus nitidus. *Caput* subconvexum, læve, sutura transversa profunda, impressionibus frontilibus brevibus, obliquis, profundis. *Thorax* capite latior, latitudine brevior, subquadratus, postico leviter angustatus; antice vix emarginatus, lateribus rotundatus, basi medio recte, ad latera oblique truncatus, angulis posticis fere nullis, valde rotundatis; impressionibus transversis profundis, e serie punctorum formati, posteriore profundiore; linea longitudinali integra; basalibus rotundatis, non profundis, punctis paucis grossis notatis. *Elytra* latitudine duplo longiora, apice rotundata, profunde striata, interstitiis paulo convexis, 3<sup>io</sup> unipunctato, stria rudimentali brevissima.

Præcedente minor, thorace postico paulo magis retracto, impressionibus profundioribus, grossius punctatis; interstitiis elytralibus minus planatis, facile distinguendus.

4. *humilis*. Dej. Sp. Gen. Variat testaceus, capite piceo.

Habitat in provinciis mediis et ad Rocky Mountains.

5. *partiarius*. Say. Trans. Am. Phil. Soc. Vol. II. N. S. (Trechus.)

*pauperculus*. Dej. Sp. Gen. Habitat cum priore.

α elytris piceis, tenue testaceo-marginatis=*consimilis* Dej. Sp. Gen.

6. *difficilis*. Dej. Sp. Gen. Habitat in provinciis australibus.

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Subdivisio IV.—*Trechini*.

CORPUS antice angustatum, in plerisque gracile.

CAPUT postice nunc non retractum, nunc leviter coarctatum : antice acutum.

PALPI elongati, articulo ultimo conico, apice valde acuto.

TARSI antiqui ♂ dilatati.

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AEPUS. Leach.

TRECHUS. p. Dej.

CORPUS lineare, depressum.

CAPUT magnum, thoracem æquans.

LABRUM quadratum antice paulo emarginatum.

MANDIBULÆ porrectæ.

MENTUM vix concavum, medio profunde emarginatum, dento nullo.

PALPI elongati, articulo ultimo conico, acuto, penultimo paulo longiore, et ei arcte conjuncto, massam fusiformem formante.

TARSI antiqui ♂ articulis 4 modice dilatatis, 1–3<sup>io</sup> subquadratis, 4<sup>to</sup> emarginato, sublunato, subtus spina valida armato.

*intermedii* articulis 4 brevibus.

*postici* articulo 1<sup>mo</sup> elongato, 5<sup>to</sup> æquante.

*omnes* articulis singulis setis longis sparsis terminatis.

1. *testaceus*. *Obscure brunneus; antennis, palpis, thorace, elytrorum sutura apiceque, epipleuris, ano, pedibusque rufo-testaceis; elytris profunde striatis, interstitiis convexis.* Long. .16, lat. .05. Habitat in Pennsylvania ad urbem Columbiam: ♂ a Dom. Haldeman benevole datus: ♀ mihi lecta.

*Badister testaceus.* LeConte. Proc. Ac. Nat. Sc. Vol. II.

*Elongatus*, valde depressus, obscure brunneus. *Caput* magnum, latitudine paulo longius, antice subacutum, pone oculos non coarctatum, læve; impressionibus frontalibus magnis, profundisque: ore palpisque testaceis. *Antennæ* capite cum thorace longiores, compressæ, versus apicem leviter incrassatæ, testaceæ, articulo 1<sup>mo</sup> pallidiore. *Oculi* parvi, non prominuli. *Thorax* capite non latior, latitudine non brevior, subcordatus, antice truncatus, basi medio recte, ad latera oblique truncatus, pone medium modice angustatus, lateribus prope basin leviter sinuatis; angulis posticis rectis, prominulis; rufo-testaceus nitidus; impressionibus transversis distinctis, linea longitudinali profunda, basalibus subelongatis. *Elytra* thorace paulo latiora, latitudine duplo longiora, apice subtruncata, parallela; brunnea, sutura, margine apiceque pallidioribus; profundo striata, interstitiis convexis, leviter undulatis, stria rudimentali brevi, recta.

*Æpo fulvescenti* (Leach.) Europæ similis, moribus tamen differt; nam *A. fulvescens* fere submarinus est, vitam sub lapidibus æstu raro apertis degens.

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### EPAPHIUS. Leach.

*TRECHUS.* p. Dej.

**CORPUS** gracile, subconvexum.

**CAPUT** antice valde acutum.

**PALPI** elongati, articulo ultimo conico, acuto, præcedente non longiore, et ei arcte conjuncto, massam fusiformem formante.

**MENTUM** concavum, medio dentatum, dento valido acutoque.

**TARSI** antiqui ♂ articulis 2 interne dilatatis, spina brevi ad angulum interiorem munitis, parte dilatata subtus patella concava elliptica instructa.

**ELYTRA** ovalia, connata.

1. \* *micans*. *Subelongatus, subdepressus, piceus, nitidus; tho-*

*race postice angustato, disco bifoveolato, marginato, linea longitudinali valde profunda; elytris ovalibus, cyaneo-micantibus, striatis, striis punctatis, externis obsoletis, interstitio 3<sup>io</sup> bipunctato; antennis, palpis pedibusque pallidioribus. Long. .16, lat. .07. Habitat ad Lapointe Lacus Superioris.*

Obscure rufo-piceus, pernitidus; setis longis paucis ornatus. *Caput* subtiliter granulatum, pone oculos leviter transverse impressum, impressionibus frontalibus longis, curvatis. *Oculi* majusculi, prominuli. *Antennæ* dilute rufo-piceæ; *palpi* testacei. *Thorax* capite latior, latitudine sesqui brevior, cordato-subquadratus, postico paulo retractus; apice paulo emarginatus, basi truncatus, lateribus valde rotundatus, angulis posticis obtusis non rotundatis: disco parum convexus, utrinque ante medium foveolatus; margine depresso reflexoque postico ambiente; impressionibus transversis profundis, anteriore subangulata, linea longitudinali profunda, antice paulo abbreviata, basalibus parvis, rotundatis. *Elytra* maculis utrinque duabus magnis obscuris valde obsoletis; ovalia, apice rotundata, cyanco-micantia; striato-punctata, striis externis obsoletis; 1<sup>ma</sup> ad apicem recurvata exarataque, stria submarginali exarata, pone medium antice abbreviata; interstitio 3<sup>io</sup> punctis 2 impressis, alteroque ad apicem. *Subtus* rufo-piceus; *pedes* pallidiores.

2. \* **fulvus**. *Fulvo-testaceus, capite antennisque obscurioribus; thorace quadrato, postice parum angustato, margine reflexo; elytris ovalibus, striatis, striis punctatis, externis obsoletis; interstitio 3<sup>io</sup> bipunctato. Long. .16, lat. .07. Habitat cum priore.*

Habitus fere præcedentis, at paulo latior. Fulvo-testaceus, nitidus; *caput* rufo-piceum, pone oculos transversim leviter impressum, impressionibus frontalibus longis, curvatis; *oculi* prominuli. *Antennæ* obscure testaceæ. *Thorax* capite latior, latitudine sesqui brevior, subquadratus, postice vix retractus, antice parum angustatus, postice truncatus, angulis posticis ob-

tusis non rotundatis; disco parum convexus, margine depresso reflexoque, postice ambiente; impressionibus transversis profundis, linea longitudinali antice abbreviata, profunda, basilibus parvis, rotundatis. *Elytrâ* ovalia, striato-punctata, striis externis obsoletis; 1<sup>ma</sup> ad apicem recurvata, exarataque, 2<sup>nda</sup> leviter sinuata, submarginali exarata, antice valde abbreviata; interstitio 3<sup>io</sup> bipunctato, punctoque altero ad apicem.

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ANOPHTHALMUS. Sturm.

1. **Tellkampfi**. Erichson, Müller Archiv. für Anat. and Physiol. 1841. p. 384.

Habitat ad speluncam gigantoam (Mammoth Cave) provinciæ Kentucky: a Dom. Dr. Tellkampf benevole datus.

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LACHNOPHORUS. Dej.

1. **pubescens**. Dej. Sp. Gen. Habitat in provinciis australibus minus frequens.

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SPECIES MIHI INVISÆ.

**Euryderus?** **grossus**. Say. Trans. Am. Phil. Soc. N. S. Vol. IV. (Amara.) Habitat in Territorio Caurino, (N. W. Terr.)

**Anisodactylus tristis**. Dej. Sp. Gen.

? **melanopus**. Hald. Proc. Ac. Nat. Sc. Vol. I. (Harpalus.)

? **paradoxus**. Hald. ibid. Habitat in Pennsylvania.

**Selenophorus fossulatus**. Dej. Sp. Gen.

**Beauvoisii**. Dej. ibid.

**Harpalus maculicornis.** Chaud. Bull. de Moscou.  
1841.

**iripennis.** Say. T. A. P. S. IV.

**dulcicollis.** Ferté. Rev. Zool. 1841, e  
Texas.

**basilaris.** Kirby. F. B. A. IV.

**ochropus.** Kirby. *ibid.*

**longior.** Kirby. *ibid.*

**opacipennis.** Hald. Proc. Ac. N. Sc. I.  
301. (*herbivago similis sed. differt.*)

**Stenolophus spretus.** Dej. Sp. Gen.

**Acupalpus lugubris.** Hald. Proc. Ac. N. Sc. I. 301.

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Divisio 3.—*Chlænidea*.

*Patellimanes.*—Latr. Dej.

*Sarrothropoda.*—Kirby.

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Subdiv. 1. *Licinini*.

CAPUT antice valde obtusum.

LABRUM profunde emarginatum.

MENTUM edentatum.

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BADISTER. Clairville.

AMBLYCHUS. Gyll.

1. **notatus.** Hald. Proc. A. N. S. Vol. I.

**terminalis.** LeC. *ibid.* Vol. II.

*Niger, thorace quadrato, latitudine longiore, postice leviter retracto, angulis posticis obtusis, impressionibus basalibus profundis, elytris profunde striatis, interstitiis convexis; fuscis, versus basin rufescentibus; antennarum basi, palpis, pedibusque testaceis.* Long.  
·18, lat. ·06. Habitat NovEboraci (Wilcox), in Pennsylvania (Haldeman), et ad Rocky Mountains minus frequens.



2. *micans*. Le C. Proc. A. N. S. Vol. II.

*Niger, cæruleo micans; thorace cordato, latitudine brevior, margine versus basin late depresso, angulis posticis obtusis, subrotundatis; elytris tenuiter striatis; interstitio 3<sup>to</sup> punctis 2: palporum apice et basi, epipleuris, pedibusque pallide piceis. Long. .24, lat. .09. Specimen unum (♀) in Georgia inventum, alterumque (♂) ad Long's Peak.*

3. \**pulchellus*. *Rufo-testaceus, nitidus; capite, elytrorum macula marginali ad medium, alteraque apicali, abdomineque nigris. Long. .20, lat. .08. Habitat ad Evansville Indianæ, et in provinciis orientalibus.*

*Rufo-testaceus pernitidus. Caput nigrum, læve, puncto utrinque ad oculorum marginem. Antennæ obscuræ, articulis 3 pallidis: palpi pallidi, articulo ultimo piceo. Thorax latitudine brevior, postico leviter retractus, lateribus rotundatus, basi leviter emarginatus, angulis posticis obtusis valde rotundatis; disco leviter convexus, margine versus angulos posticos depresso; impressionibus transversis vix distinctis, linea longitudinali profunda integra, basalibus rectis, brevibus, profundis. Elytra thorace latiora, striata, interstitiis planis, 3<sup>io</sup> bipunctato; rufa, macula magna marginali ad medium, suturam fere attingente, alteraque obliqua apicali nigris. Postpectus, abdomenque nigra.*

## REMBUS. Latr.

## DIPLOCHEILA. Brullé.

Rembo (Germ.) Curculionidum genere, ab entomologis plurimis illustrissimis in usum non adhibito, nomen Latreillianum restitui.

1. \**major*. *Niger nitidus, thorace latitudine fere duplo brevior, lateribus obsolete sinuatis, basi utrinque striato; elytris striatis punctoque impresso; stria 7<sup>ma</sup> obsoleta. Long. .75, lat. .32. Abundat ad urbes Detroit, et NovAurelianum.*

*Niger nitidus*; *caput* impressionibus frontalibus latis, profundis. *Thorax* latitudine plus sesqui brevior, apice leviter emarginatus, antice paulo angustatus, lateribus ante medium rotundatis, pone medium obsolete sinuatis; basi medio leviter emarginata, utrinque oblique truncata, angulis posticis fere rectis, leviter depressis: linea longitudinali utrinque abbreviata, impressionibus basalibus rectis, profundis. *Elytra* thorace latiora (thoracis latitudine summa a margine ad elytri alterius striam 4<sup>am</sup> extendente); striata, striis versus basin obsolete punctatis, 7<sup>ma</sup> oblitterata; interstitio 3<sup>io</sup> unipunctato.

R. impressicollis similimus; statura triplo majore, thorace latiore lateribus obsolete sinuatis, elytrorumque stria 7<sup>ma</sup> oblitterata distinctus.

2. \**laticollis*. *Niger nitidus*, thorace latitudine fere duplo brevior, antice retracto, basi utrinque profunde striato, elytris striatis, punctoque impresso. Long. .57, lat. .25. Abundat ad Syracusas NovEboraci.

*Niger nitidus*. *Caput* impressionibus frontalibus longiusculis modice profundis; *labrum* acute incisum. *Thorax* latitudine plus sesqui (fere duplo) brevior, apice parum emarginato, antice valde angustato, lateribus valde rotundatis, pone medium rectis; basi medio leviter emarginata, utrinque oblique truncata, angulis posticis obtusis non rotundatis; disco tenuiter marginatus, vix convexus, versus angulos posticos depressus; impressionibus transversis indistinctis, linea longitudinali utrinque abbreviata, basalibus rectis profundis. *Elytra* thorace paulo latiora (thoracis latitudine summa a margine ad striam 5<sup>am</sup> elytri alterius extendente); striata (levius in ♀) stria 7<sup>ma</sup> oblitterata, interstitio 3<sup>io</sup> unipunctato.

3. *impressicollis*. *Niger nitidus*, thorace latitudine sesqui brevior, lateribus paulo rotundato, postice leviter angustato, elytris striato-punctatis, punctoque impresso. Long. .57, lat. .24.

R. impressicollis? Dej. Sp. Gen. V.

R. striato-punctatus LeC. Proc. A. N. S. Vol. II.

Cum descriptione Dejeaniana omnino quadrat, excepto thorace postice leviter angustato: præcedentibus angustior.

*Niger nitidus*; *caput* impressionibus frontalibus profundis, latis; *labrum* profunde incisum, medio impressum. *Thorax* latitudine sesqui brevior, antice parum angustatus, lateribus rotundatis, pone medium rectis, leviter retractis, basi medio vix emarginata, utrinque magis oblique truncata, angulis posticis obtusis non rotundatis; disco vix convexus, distinctius marginatus, versus angulos posticos depressus; linea longitudinali utrinque abbreviata, impressionibus transversis paulo distinctis; basalibus rectis, valde profundis. *Elytra* thorace latiora (thoracis latitudine summa a margine ad striam 3<sup>iam</sup> elytri alterius extendente) striata, striis punctatis, interstitio 3<sup>io</sup> unipunctato.

4. *assimilis*. LeC. loc. cit. *Niger nitidus*, thorace latitudine sesqui brevior, lateribus paulo rotundatis, basi utrinque striato; elytris profundius striatis, punctoque impresso. Long. '45, lat. '20. Habitat NovEboraci, et in Georgia minus frequens.

*Niger nitidus*. *Caput* impressionibus frontalibus brevibus profundis. *Thorax* latitudine sesqui brevior, apice leviter emarginatus, antice parum angustatus, lateribus leviter rotundatis, pone medium fere rectis, basi medio fere truncata, utrinque minus oblique truncata, angulis posticis rectis; disco vix convexus, versus angulos posticos leviter depressus; linea longitudinali antice leviter abbreviata, impressionibus transversis vix distinctis, basalibus valde profundis, alteraque externa parva valde indistincta. *Elytra* thorace paulo latiora, (thoracis latitudine summa ad striam 5<sup>tam</sup> extendente) paulo profundius striata, stria rudimentali brevi ad basin; striis versus basin leviter punctatis.

5. \* *obtusus*. *Niger nitidus*, thorace antice angustato, basi utrinque striato, angulis posticis obtusis rotundatis; elytris striatis, puncto nullo. Long. '44, lat. '18. Habitat ad Long's Peak.

Ab omnibus præcedentibus thorace minus depresso, impress-

ionibus transversis distinctioribus, angulis posticis rotundatis; elytrorumque interstitio 3<sup>io</sup> impunctato dignoscendus.

*Niger nitidus.* *Caput* impressionibus frontaliibus parvis, vix distinctis. *Thorax* latitudine sesqui brevior, antice leviter angustatus, apice parum emarginatus, lateribus rotundatus, præcipue ante medium, basi medio leviter emarginata, utrinque vix oblique truncata, angulis posticis leviter rotundatis: disco tenuiter marginatus, modico convexus, margine pone medium et versus angulos posticos leviter depresso; linea longitudinali tenui antice abbreviata; impressione anteriore angulata, posteriore recta; basalibus profundis, breviusculis. *Elytra* thorace paulo latiora, striis omnino lævibus, interstitiis planatis, 3<sup>io</sup> impunctato; stria rudimentali ad basin nulla.

## DICÆLUS, Bon.

Elytra	{	lævia,		§1.		
	{	striata,	{	violacea,	costis alternatim subcarinatis,	§2.
					costis æqualiter rotundatis,	§3.
			{	nigra, costis	{	irregulariter interruptis,
	alternatim latoribus,	§5.				
	æqualibus,	thorace quadrato,				§6.
			thorace postice retracto,	§7.		

## §1. Elytris lævibus.

1. \**lævipennis*. *Niger obscure violaceus, thorace antice valde angustato, lateribus rotundatis, elytris tenuiter punctato-striatis, carina humerali ad trientem abbreviata*, Long. .7, lat. .31. Habitat ad flumen Platte, prope rupem caminatum (Chimney).

Ellipticus, depressus, niger obscure violaceus. *Caput* minusculum, antice subacutum, leviter rugosum, impressionibus frontaliibus modice profundis. *Thorax* basi capite triplo latior, latitudine sesqui brevior, apice profunde rotundato-emarginatus, basi sinuato-emarginatus, antice valde angustatus, lateribus rotundatis; subtiliter rugosus; linea longitudinali fere integra, impressione transversa anteriore vix distincta, posteriore profunda, sinuata, medio angulata, ramo utrinque recto ad angulum

posteriorem extendente; basalibus brevibus, leviter sinuatis, ad basin extendentibus; lateribus lato depressis, impressione laterali arcuata cum posteriore transversa connexa, pone medium subduplicata; margine incrassato, elevatoque. *Elytra* thorace vix latiora, postice rotundata, margine reflexo, carina humerali valde acuta, ad trientem abbreviata: minus convexa, nitidiuscula, lineis punctorum subtilium versus suturam distinctioribus. Subtus nigro-violaceus.

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§2. Costis alternatim subcarinatis.

2. \**quadratus*. Dej. Cat. *Oblongus latus, depressus, niger violaceo irroratus; thorace antice angustato, lateribus rotundatis, elytris striatis, interstitiis 3<sup>io</sup>, 5<sup>to</sup> 7<sup>mo</sup>que dorso subacutis*. Long. .96, lat. .4. Habitat in Georgia minus frequens.

Oblongo-ellipticus, latus, depressus, niger violaceo-irroratus. *Caput* magnum obtusum, lævo, vix nitidum; impressionibus frontalibus latis, non profundis. *Thorax* basi capite vix duplo latior, apice modice rotundato-emarginatus, basi utrinque subito parum incisa, parte mediana levissime rotundato-emarginata; antice angustatus, lateribus rotundatus, angulis posticis rectis, levissime rotundatis; disco vix convexus, obsolete rugosus; linea longitudinali fere integra, impressionibus transversis distinctis, sed non acuto impressis, anteriore a margine remota, utrinque obtuse angulata, posteriore medio leviter angulata, ramo utrinque concavo ad angulum extendente; basalibus longis sinuatis, ad basin extendentibus, antice arcuatim prolongatis, impressioni laterali parallelis; lateribus valde depressis, impressione laterali arcuata, ante medium lateribus parallela, pone medium inflexa cum impressione transversa posteriore connexa, margine incrassato, elevatoque. *Elytra* thorace vix latiora, postice rotundata, levissime acuminata, margine reflexo; minus convexa, profundo striata, striis punctatis, sutura interstitiisque 3<sup>io</sup>, 5<sup>to</sup>, et 7<sup>mo</sup> magis elevatis, dorso acutiusculis, hoc carina humerali acuta, gradatim evanescente; interstitio 6<sup>to</sup> punctis paucis ad basin. Subtus niger, vix violaceus.



§3. Violacei, costis æqualiter rotundatis.

3. \**decoloratus*. *Niger vix violaceus, thorace antice angustato, lateribus rotundatis, elytris aureo-decoloratis, striatis*. Long. 1·07, lat. 43. Specimen unicum a Texas, Dom. Dr. Engelman amice datum.

Reliquis major, forma vero *D. splendido* simillimus. *Caput* magnum, nigrum, subnitidum, obsolete rugosum, impressionibus frontilibus latis non profundis. *Thorax* basi capite duplo latior, latitudine fere duplo brevior, apice rotundato-emarginatus, basi subsubito paulo incisus, parte mediana leviter emarginata; apice angustatus, lateribus ante medium rotundatis, dein rectis, angulis posticis rectis, vix rotundatis; linea longitudinali levi, utrinque abbreviata, impressione transversa anteriore a margine remota, distincta, posteriore profunda, medio angulata, ramo concavo minus profundo ad angulum; basalibus profundis, granulato-rugosis, antice oblique prolongatis, ante medium extendentibus, extrorsum concavis; lateribus depresso, quam in sequente angustioribus, concavioribus, impressione laterali minus curvata; margine incrassato, paulo magis elevato; impressione parva prope angulum posticum concava, introrsum cum impressione transversa posteriore valde distincte arcuatim conjuncta. *Elytra* thorace vix latiora, postice rotundata, dorso pone medium modice convexa; aureo-decolorata, margine reflexo obscuriore; striata striis fere lævibus, interstitiis 5<sup>to</sup> 6<sup>to</sup>que punctis paucis ad basin: carina humerali acuta, gradatim evanescente. Subtus niger, vix violaceus.

Obs.—*D. splendido* plus duplo major, thorace angulis anticis paulo minus acutis, margine minus lato depresso, impressione transversa posteriore ramo ad angulum minus profundo, impressione externa cum posteriore transversa profundius connexa, carinaque humerali minus prolongata, necnon colore elytrorum decolorato distinctus videtur.

4. *splendidus*. Say. Am. Ent. pl. 24. Trans. Am. Phil. Soc. Vol. II.

*Oblongus niger violaceo-irroratus, thorace antice*



*angustato, lateribus rotundato, elytris cupreo-nitidis, margine subcyaneo.* Long. .8, lat. .32. Habitat ad flumen Platte infra furcationem, sat frequens.

Latus, oblongus, modico depressus. *Caput* magnum, nigrum, subtiliter rugosum, impressionibus frontilibus latis, non profundis. *Antennae palpique* nigri. *Thorax* basi capite paulo plus duplo latior, latitudine plus sesqui brevior, antice angustatus; lateribus ante medium rotundatis, apice profunde rotundato-emarginatus, angulis posticis rectis, vix rotundatis; disco subrugosus, violaceo-irroratus; linea longitudinali fere integra, impressione transversa anteriore a margine remota, posteriore profunda, sinuata, ramo ad angulum profundo minus concavo; basalibus modice profundis, sinuatis antice ad medium oblique prolongatis, lateribus lato depressis, impressione laterali arcuata pone medium incurvata; impressione parva prope angulum posteriorem concava, introrsum cum impressione transversa vix connexa; margine incrassato, elevato. *Elytra* thorace vix latiora, postice rotundata, dorso pone medium convexiuscula, cupreo-splendida, margine reflexo cyaneo; profunde striata, striis obsolete punctatis, interstitiis convexis, 5<sup>to</sup> 6<sup>to</sup>que basi punctis paucis; carina humerali acuta magis elevata, gradatim evanescente. Subtus niger, epipleuris violaceis.

Obs.—Specimen unicum a Dom. Wilcox in provincia Illinois lectum, et amicissime datum sesqui majus, elytris aureo-micantibus, planioribus, postico multo minus convexis, striis distinctius punctatis. An varietas, an revera species distincta?

5. *chalybeus*. Dej. Sp. Gen. Habitat in provinciis australibus sat frequens, in provinciis mediis rarissimus.

Long. 1.03, lat. .4. Thorace latitudine sesqui brevior, antice angustato, lateribus modice rotundatis, angulis posticis levissime obtusis subrotundatis distinctus; elytris in ♂ postice obsolete acuminatus.

6. \* *confusus*. Obscure violaceus, thorace antice angustato, lateribus rotundato, postice vix distincte retracto; elytris parallelis, apice rotundatis. Long. 1.00, lat. .38. Specimen unicum in Georgia lectum.

Præcedenti simillimus, colore obscuriore, formaque magis parallela. *Antennæ* fuscæ, basi picæ. *Thorax* latitudine fero duplo brevior, antice magis angustatus, lateribus ante medium magis rotundatis, pone medium levissime retractis, obsoleteque sinuatis, angulis posticis rectis, minus rotundatis; impressionibus omnibus sicut in *D. chalybeo*, (vide *Dej. Sp. Gen.*) *Elytra* magis parallela, apice rotundata, profunde striata, striis impunctatis, interstitiis modice convexis, sicut in *D. chalybeo*, dorso alternatim paulo acutioribus.

7. *violaceus*. Say. Am. Ent. pl. 24: ? Trans. Am. Phil. Soc. II.

? Bonelli Mem. de l' Acad. Turin. V.

*cyaneus*? *Dej. Sp. Gen.* Habitat in provinciis mediis et occidentalibus minus frequens.

Long. 1·00—87, lat. 37—32. *D. chalybeo* angustior et parallelior, thorace latitudine sesqui brevior, antice parum angustato, apice profunde rotundato-emarginato, lateribus antice paulo rotundatis, pone medium obsolete sinuatis, angulis posticis rectis, vix rotundatis; disco nitidiusculo, vix rugoso, impressionibus sicut in *D. chalybeo*; lateribus angustius depressis, magis reflexis, impressione laterali antice lateribus parallela. *Elytra* parallela, apice rotundata, postice leviter convexa, striata, interstitiis æqualiter dorso obsolete acutis; striis nonnunquam obsolete punctatis.

8. *purpuratus*. Bonelli. loc. cit.

? Say. Trans. Am. Ph. S. II.

*violaceus*. *Dej. Sp. Gen.* V. 684.

Habitat in provinciis australibus. Descriptio Bonelliana, 'thorace transverso, corpore abbreviato, dilatato' ad hanc speciem plane refert.

Long. 1·11, lat. 43. Thorace latitudine fero duplo brevior, antice vix angustato, lateribus parum rotundato, apice minus profunde emarginato facile distinctus; marginibus lato depressis, impressionibus sicut in *D. chalybeo*; elytris depressiusculis,

apice rotundatis, striatis, interstitiis dorso alternatim paulo acutioribus.

9. \**iricolor*. *Angustior late violaceus, thorace obsolete viridimicante, antice leviter angustato, lateribus paulo rotundatis, angulis posticis leviter rotundatis.* Long. .87, lat. .32. Habitat ad urbem St. Louis: a Dom. Engelman benevole datus.

*D. chalybeo* minor et angustior, lætius violaceus. *Caput* violaceum, impressionibus frontalibus latis non profundis. *Antennæ* apice fuscæ. *Thorax* basi capite duplo latior, latitudine sesqui brevior, apice profunde rotundato-emarginatus, antice modice angustatus, lateribus regulariter rotundatus, basi medio late incisa, angulis posticis leviter obtusis, rotundatis; impressionibus quam in *D. chalybeo* minus profundis, lateribus angustius depressis, magis reflexis, disco medio magis convexo. *Elytra* magis parallela, striata interstitiis dorso alternatim paulo acutioribus; striis externis obsolete punctatis.

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§4. Costis irregulariter interruptis.

10. *sculptilis*. Say. Trans. A. P. S. II. Am. Ent. pl. 24. Habitat in provinciis occidentalibus, et in Territorio Missouriensi; rarissimo in Pennsylvania ad montes.

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§5. Costis alternatim latioribus.

11. *carinatus*. Dej. Sp. Gen. V. Habitat in provinciis australibus minus frequens.
12. *alternans*. Dej. ibid. Habitat cum priore.

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§6. Nigri, thoraco quadrato, elytris costis æqualibus.

13. *Dejeanii*. Dej. Sp. Gen. V. Habitat in provinciis australibus minus frequens, a Dom Haldeman benevole datus. Sequenti simillimus, sed major, thorace brevior, antice magis angustato, lateribus ante medium multo magis rotundato, impressione laterali

multo magis arcuata: elytris thorace fere sesquialtoribus distinctus.

14. *dilatatus*. Say. Tr. A. P. S. II; Am. Ent. pl. 24. Habitat in provinciis mediis et australibus minus frequens. Long. .93, lat. .35. A præcedente statura minore, elytrisque thorace parum latioribus distinguendus; thorace antice leviter angustato, lateribus, leviter rotundatis.

15. \**planicollis*. *Ovatus, latus, niger, opacus: thorace antice angustato, lateribus vix rotundato, fere plano: elytris striatis carina humerali valde abbreviata*. Long. .95, lat. .42. Specimen unicum in Georgia ad montes a Dom. Ludov. LeConte lectum et benevole missum.

Præcedente major, et thorace planiusculo, lateribus vix rotundato facile cognoscendus.

*Ovatus, latus, niger, opacus. Caput* antice subacutum, mandibulis longiusculis acutis, impressionibus frontalibus latis, rugosis. *Thorax* quadratus, apice leviter rotundato-emarginatus, antice leviter angustatus, lateribus vix rotundatus, basi medio late minus profunde emarginatus, angulis posticis rectis, paulo rotundatis; subrugosus, fere planus; impressionibus transversis distinctis, sed non profundis; posteriore sinuato, ramo valde arcuato ad angulum; basalibus brevibus introrsum leviter obliquis, lateribus depressis, margine magis incrassato, elevato; impressione laterali minus profunda, antice lateribus sub-parallela, pone medium incurvata, cum impressione posteriore obsolete connexa. *Elytra* thorace paulo latiora ovalia, postice non dilatata, apice rotundata, dorso planiuscula, postice leviter convexa, striata, striis impunctatis, interstitiis parum convexis, basi sparsè punctatis, carina humerali valde abbreviata.

16. \**ovalis*. *Ellipticus, latus, niger, subopacus, thorace antice subangustato, lateribus leviter rotundato, margine magis reflexo; elytris striatis carina humerali ad*

*medium extendente.* Long. '7—'62, lat. '3—'25. Habitat ubique minus frequens.

Ellipticus, latus, niger, subopacus. *Caput* subelongatum, antice acutum, transverse rugosum, obsoletissime rugose-punctatum, impressionibus frontalibus profundis. *Antennæ* versus apicem fuscescentes. *Thorax* basi capite duplo latior, latitudine fere sesqui brevior, apice profundo rotundato-emarginatus, angulis anticis acutis; antice leviter angustatus, lateribus leviter rotundatus, basi medio late subito paulo incisa, angulis posticis rectis rotundatis: disco minus convexus, transversim leviter rugosus, obsoletissime rugose-punctatus; linea longitudinali fere integra, impressionibus transversis indistinctis, anteriore arcuata, posteriore vix angulata, ramo ad angulum minus profundo; basalibus modicis, ad medium non extendentibus introrsum leviter obliquis, margine depresso, distinctius reflexo, antice fere evanescente; impressione laterali satis profunda, postico non incurvata, cum ramo obliquo conjuncta. *Elytra* thorace vix latiora, postico non dilatata, apice rotundata (♂ paulo angustata) pone medium convexa, striata, interstitiis minus convexis, 5<sup>to</sup>, 6<sup>to</sup> que basi striola abbreviata: carina humerali acuta, paulo pone medium evanescente.

17. *ambiguus*. Ferté. Rev. Zool. 1841: Dej. Cat. *Subelongatus, niger, parum nitidus, thorace antice leviter angustato, lateribus paulo rotundato, margine tenui antice ambiente; clytris striatis, carina humerali pone medium extendente.* Long. '75, lat. '29. Habitat in provinciis australibus.

D. obscuro simillimus; paulo latior, et minus opacus: thorace paulo brevior, antice minus angustato, angulis posticis magis rotundatis, angulis anticis minus acutis margine tenui ambiente, distinctus.

Subelongatus, niger, parum nitidus. *Caput* minusculum, impressionibus frontalibus latis, non profundis, obsolete rugosum, longitudinaliter subtilissime rugose punctatum. *Antennæ* apice fuscae. *Thorax* basi capite plus duplo latior, latitudine non sesqui brevior, apice profunde emarginatus, emarginatione basi fere



recta, angulis anticis acutis, leviter rotundatis margine tenui ambiente; antice angustatus, lateribus rotundatus, basi medio subito late incisa, angulis posticis rectis modice rotundatis; disco vix convexus; linea longitudinali tenui fere integra, impressionibus transversis indistinctis, posteriore ramo ad angulum concavo, basalibus sat elongatis, introrsum leviter obliquis; lateribus angustius minus subito depressis, impressione laterali antice cum margine parallela, pone medium incurvata, duplicata; margine tenui elevato nitido. *Elytra* thorace vix latiora, apice subacuminata (magis in ♂) pone medium leviter convexa, striata interstitiis, modice convexis, æqualiter rotundatis, carina humerali valde acuta, pone medium evanescente.

Obs.—Specimina ad Rocky Mountains obtinui sesqui minora, thorace paulo planiore, margine minus reflexo, impressione laterali minus incurvata. An species distincta?

18. *opacus*? Fertè. Rev. Zool. 1841. Long. .73, lat. .27.

Præcedenti simillimus; thorax latitudine vix brevior, antice minus angustatus, lateribus ante medium minus rotundatis, pone medium obsoletissime sinuatis, impressione laterali profundiore postice leviter sinuata, lateribus magis reflexis. A sequente corpore minus opaco, thorace antice multo minus angustato, lateribusque postice sinuatis distinctus. Specimen unicum in Alabama lectum a Dom. Haldeman benevole datum.

11. \**obscurus*. *Elongatus, nigro-opacus, thorace antice angustato, lateribus rotundato, angulis anticis valde acutis, margine non ambiente; clytris striatis, interstitiis minus convexis, dorso alternatim obsolete acutioribus: carina humerali ad medium evanescente.* Long. .7, lat. .26. Habitat in provinciis australibus.

D. simplex LeC. MSS.

Forma thoracis a præcedentibus duobus satis distinctus; lateribus (sicut in D. opaco) distinctius reflexis, impressione laterali profundiore, et non sinuato. *Caput* paulo latius et minus elon-



gatum. A sequente thorace longiore, antice ad latera minus rotundato, coloreque obscuriore dignoscendus.

20. **simplex**. Dej. Sp. Gen. *Subelongatus, niger subopacus, thorace latitudine fere sesqui brevior, antice angustato, lateribus rotundato, elytris striatis, interstitiis æqualiter parum rotundatis*. Long. .69, lat. .25. Habitat in provinciis mediis.

Statura præcedentis, minus opacus: thorace brevior, lateribus antice magis rotundatis, angulis posticis levissime obtusis, paulo rotundatis, impressione transversa posteriore profunda, medio angulata, impressione laterali antice margini magis approximata, postice subsinuata, ad basin ipsam extendente; elytris striatis, interstitiis æqualiter parum rotundatis.

21. **elongatus**. Bonelli. loc. cit: Say. Trans. A. P. S. II: Dej. Sp. Gen.

*furvus*. Mels. Cat. (non Dej. Sp. Gen.) Hab. in provinciis mediis sat frequens. Long. .65, lat. .23.

Præcedente angustior et nitidior, forma thoracis D. ambiguum refert; angulis anticis acutioribus, marginibusque magis reflexis facile distinctus; impressio lateralis profunda est, et lateribus fere parallela.

22. **\*reflexus**. *Elongatus, niger nitidiusculus, thorace antice non angustato, pone medium lateribus subsinuato, margine lato valde reflexo*. Long. .8, lat. .30. Habitat ad Columbiam Pennsylvaniae.

Elongatus, parallelus, niger nitidiusculus. Caput magnum obtusum, impressionibus profundis. Thorax basi capite sesquilatior, latitudine sesqui brevior, antice vix conspicue angustatus, apice lato emarginatus, lateribus vix rotundatis, pone medium obsolete sinuatis, basi medio lato emarginata, utrinque leviter oblique truncata, angulis posticis subrotundatis; disco vix convexus, leviter rugosus; linea longitudinali profunda subintegra, impressionibus transversis profundis, posteriore medio leviter angulata, ramo ad angulum concavo, distincto; basalibus leviter obliquis, profundis, ad medium vix extendentibus; laterali forti-

ter impressa, margini parallela, lateribus late depressis, fortiter reflexis. *Elytra* parallela postice paulo convexa, apice rotundato-acuminata, striata, interstitiis æqualiter paulo rotundatis, 6<sup>to</sup> basi punctis paucis; carina humerali valde acuta, ante medium evanescente.

23. *politus*. Dej. Sp. Gen. Habitat in provinciis mediis.

Ab amico meo Wilcox certior factus sum, insectum hoc, sub nomine *Leonardi* a Dom. Harris vulgatum fuisse. Nescio tamen in quo libro, nisi in '*newspaper*' quodam 'Agricola Nov-Angliæ' dicto, libro ad scientiam profano et vili.

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§ 7. Thorace leviter cordato, postice retracto.

24. *teter*. Bonelli loc. cit: Dej. Sp. Gen. Habitat Nov-Eboraci.

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Subdiv. 2.—*Chleniini*.

CAPUT antice subacutum.

LABRUM submarginatum, raro profunde incisum.

MENTUM dentatum.

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OODES. Bonelli.

1. *americanus*. Dej. Sp. Gen. Habitat in provinciis australibus minus frequens,

2. *picipes*. LeC. Proc. Ac. Nat. Sc. II. *Niger, obscure æneus, elytris striatis, interstitiis paulo convexis, antennarum basi, tarsisque piceis*. Long. .44, lat. .28. Habitat in provinciis australibus. Præcedente duplo minor.

3. *amaroides*. Dej. Sp. Gen. Habitat NovEboraci, in provinciis australibus, et ad Rocky Mountains.

4. *14-striatis*. Chaud. Bull. Moscou. 1841. *Angustus, niger, elytris æneis, striatis, interstitiis planis*. Long. .33, lat. .14. Habitat NovAureliani, a Dom. Guex datus.

5. *cupraeus*. Chaud. ibid. *Angustus æneus, elytris striato-punctatis; antennarum basi, tibiis tarsisque pallidis.* Long. .36, lat. 15. Abundat NovAureliani, et ad Quincy, Illinois. A DD. Wilcox et Guex benevole datus.
6. *minutus*. Dej. Sp. Gen. V. Specimen unicum in Alabama lectum a Dom. Haldeman amicissime datum.
7. *exaratus*. Dej. ibid. Habitat in Georgia rarissime.

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DINODES. Bonelli.

1. *purpuricollis*. Rand. Bost. J. N. H. II. (Chlænius.) Habitat NovEboraci, et ad Rocky Mountains rarissime.

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CHLÆNIUS. Bonelli.

1. *erythropus*. Germar Ins. Nov.  
*rufilabris*. Dej. Sp. Gen. Abundat in provinciis australibus et occidentalibus.
2. *fuscicornis*. Dej. ibid. Habitat in provinciis australibus minus frequens, thorace latiore, lateribus non sinuatis facile distinctus.
3. \* *brevicollis*. *Supra cyaneo-violaceus, pubescens, thorace punctatissimo, latitudine sesqui brevior, lateribus valde rotundato, angulis posticis obtusis; antennis, palpis pedibusque ferrugineis.* Long. .6, lat. .27. Habitat in Georgia minus frequens.

*C. rufipedi* simillimus, at thorace brevior, lateribus magis rotundatis facile dignoscendus: a *C. laticolle* thoracis forma, elytrisque minus parallelis, magis ovalibus differt.

Supra cyaneo-violaceus, breviter brunneo-pubescens: caput nitidum, cyaneum, utrinque dense punctatum, labro, mandibulisque piceis, antennis palpisque ferrugineis. Thorax capite duplo latior, latitudine sesqui brevior, antice angustatus, lateribus valde rotundatus, basi fere recte truncatus, angulis posticis obtusis, le-

viter rotundatis, densissime punctatus, disco leviter convexus : impressionibus transversis fere nullis, linea longitudinali utrinque paulo abbreviata, basalibus profundis, fere ad medium antice prolongatis. *Elytra* thorace sesqui latiora, ovalia, versus humeros rotundata, striato-punctata, interstitiis granulatis, planis. *Subtus* niger, punctatus, pedibus ferrugineis.

4. *laticollis*. Say. Trans. A. P. S. II : Dej. Sp. Gen. Habitat in Territorio Missouriensi.

Sequenti simillimus, purpureo-violaceus, vel cyaneo-obscurus, elytris densius pubescentibus : *thorax* latitudine paulo brevior, antice modice angustatus, lateribus leviter rotundatus, angulis posticis obtusis, vix rotundatis ; disco minus convexus, densius punctatus ; impressionibus transversis distinctis, basalibus modice profundis. *Elytra* thorace paulo latiora, antice lateribus parum rotundata, striato-punctata, interstitiis distinctius punctato-granulatis.

5. *rufipes*. Dej. Sp. Gen. Habitat NovEboraci, et in provinciis australibus sat frequens : thorace latitudine non brevior, lateribus modice rotundato, disco leviter convexo : elytris ovalibus, thorace sesqui latioribus, antice rotundatis.

6. *augustus*. Newman Ent. Mag. V. 490.

*Lecontei*. Hald. Proc. A. N. S. I. 304. *Oblongus latiusculus, supra læte viridis, sericeo-pubescentis : thorace antice angustato, lateribus modice rotundatis, punctatissimo, elytris striato-punctatis, interstitiis distincte punctatis : antennarum basi, pedibusque ferrugineis*. Long. .65, lat. .3. Habitat in provinciis australibus minus frequens.

*Latiusculus, supra læte viridis, subtus niger ; sericeo-pubescentis. Caput punctatum, fronte lævi, palpi antennæque picci, basi rufi. Thorax basi capite duplo latior, latitudine vix brevior, apice vix emarginatus, antice angustatus, lateribus modice rotundatus, prope basin obsolete sinuatus, angulis posticis rectis : disco vix convexus, punctatissimus, margine tenui depresso ; linea*

longitudinali fere nulla, impressionibus basalibus brevibus non profundis. *Elytra* thoraco paulo latiora, ovalia, lateribus paulo rotundatis, striato-punctata, interstitiis planis, minus subtiliter punctatis. *Pedes* ferruginei.

7. **lithophilus**. Say. Trans. A. P. S. II.

*viridanus*. Dej. Sp. Gen. Habitat in provinciis mediis et occidentalibus.

8. **sericeus**. Forster. Ins.: Say. Trans. A. P. S. II.: Dej. Sp. Gen. Abundat ubique, usque ad Territorium Oregonense.

9. \* **perviridis**. *Supra late viridis, sericeo-pubescent, capite utrinque sparse punctato, thorace punctatissimo, latitudine non brevior, postice leviter retracto, impressionibus basalibus profundis: elytris striato-punctatis, interstitiis planis, subtiliter punctatis, antennis, palpis, pedibusque ferrugineis. Long. .55; lat. .24: Specimen unicum ad Rocky Mountains inventum.*

C. sericeo simillimus, at capite minus punctato, thorace brevior, paulo convexior, lateribus multo magis rotundato, postice leviter retracto, elytrisque distinctius punctatis differt.

Oblongo-elongatus, supra late viridis, subtus niger, sericeo-pubescent. *Caput* breve, oculis valde extantibus, utrinque et postice sparse punctatum, fronte laevi. *Mandibula* piceæ, palpi antennæque ferruginei. *Thorax* latitudine vix brevior, capite sesqui latior, antice angustatus, apice vix emarginatus, lateribus ante medium valde rotundatis, pone medium obsolete sinuatis leviter retractis, basi medio leviter emarginata, utrinque oblique truncata; disco leviter convexus, punctatissimus; impressionibus transversis distinctis, linea longitudinali antice abbreviata, basalibus brevibus, profundis, leviter obliquis. *Elytra* thorace sesqui latiora, ovalia, striato-punctata, interstitiis subtiliter, sed distincte punctatis. *Pedes* rufo-ferruginei.

10. **aestivus**. Say. Trans. A. P. S. II.

*cobaltinus*. Dej. Sp. Gen. II. Habitat ubique.

11. **congener.** LeC. Proc. A. N. S. II. Habitat in provinciis australibus minus frequens. Long. .62, lat. .24.

Præcedenti simillimus, forma angustiore, capite multo minus punctato, thorace convexiore, lateribus magis rotundato, postice magis retracto, vix sinuato, impressione transversa posteriore valde profunda: elytris profundius striatis, striis minus punctatis.

12. **amoenus.** Dej. Sp. Gen. V. Habitat in provinciis australibus minus frequens.

13. **patruelis.** Dej. Cat.: LeC. Proc. A. N. S. II. *Supra viridis, sericeo-pubescent, capite postice sparse punctato, thorace grosse punctato, elongato, subconvexo, lateribus subsinuatis, impressionibus basalibus profundis; elytris striato-punctatis, interstitiis obsolete punctatis; antennæ palpis, pedibusque ferrugineis.* Habitat in Georgia minus frequens.

Elongatus, supra læte viridis, sericeo-pubescent: subtus nigro-piceus. *Caput* postice sparse punctatum. *Thorax* capite paulo latior, latitudine fere sesqui longior, postice leviter retracts, lateribus antice modice rotundatis, pone medium subsinuatis: disco modico convexus, grosse punctatus; linea longitudinali indistincta, impressione transversa posteriore recta, basalibus valde profundis. *Elytra* thorace sesqui latiora, ovalia, lateribus versus humeros valde rotundata, striato-punctata, interstitiis obsolete punctatis. *Pedes* ferruginei.

14. **prasinus.** Dej. Sp. Gen. Habitat in provinciis mediis et occidentalibus.

15. **solitarius.** Say. Trans. A. P. S. II. Habitat in provinciis occidentalibus, et in Territorio Missouriensi minus frequens. A Dom. Wilcox amice datus.

17. **chlorophanus.** Dej. Sp. Gen.

*cordicollis.* Kirby. F. B. A. (var. obscurior.) Habitat in provinciis mediis ad aquarum marginem.



18. *nemoralis*. Say. Trans. A. P. S. II: Dej. Sp. Gen.  
Habitat ubique: thorace obsoletius subtilius punctato facile dignoscendus.
19. *pensylvanicus*. Say. Trans. A. P. S. II.  
*fulgiceps*. Newman Ent. Mag. V. 490.  
*longicollis*. Chaud. Bull. de Moscou. 1841.  
Sequenti simillimus, at colore viridi, elytrorumque interstitiis convexioribus differt. Habitat in provinciis mediis.
20. *tricolor*. Dej. Sp. Gen.  
*emarginatus*. Kirby. F. B. A. IV. Habitat ubique.
21. \**atripennis*. Niger, capite thoraceque viridiæncis, hoc punctato, latitudine sesqui breiore, lateribus valde rotundatis, impressionibus basalibus profundis; elytris atro-violaceis, striato-punctatis, interstitiis obsoletissime punctatis. Long. 50, lat. 21. Habitat in provinciis mediis.  
Præcedenti simillimus, at thorace latiore, antice magis rotundato, postice magis retracto, elytris interstitiis minus convexis, obsoletius punctatis distinctus videtur.  
Subelongatus, niger pubescens. Caput subtilissime punctatum, viridiæneum nitidum, impressionibus non profundis. Antennæ fuscae, basi rufae. Thorax capite duplo latior, latitudine fere sesqui brevior, antice posticeque truncatus, lateribus ante medium valde rotundatus, angulis posticis obtusis, non rotundatis; viridiæneus, punctatus: impressionibus transversis fere nullis, linea longitudinali antice abbreviata, basalibus profundis, extrorsum leviter obliquis, curvatisque. Elytra thorace sesqui latiora, ovalia, ad humeros rotundata; atropurpurea, striato-punctata, interstitiis fere planis, obsoletissime punctatis. Pedes ferruginei, coxis nigris.
22. *vicinus*. Dej. Sp. Gen. Habitat ubique usque ad Rocky Mountains. Præcedentibus quatuor affinis, sed thorace latiore, lateribus valde rotundatis, postico vix sinuatis.

23. \* *consimilis*. *Niger, capite thoraceque viridi-æneis, hoc lato, antice angustato, lateribus rotundatis, postice subsinuatis, angulis posticis rectis: elytris purpureis, striato-punctatis, interstitiis obsolete punctatis; antennarum basi, palpis, pedibusque ferrugineis.* Long. .43, lat. .19. Specimen unicum ad Rocky Mountains lectum.

*Chlænius oxygonus?* Chaud. Bull. de Moscou. 1841.

Præcedentibus quinque simillimus, at thoracis forma satis distinctus. *Niger sericeo-pubescent.* *Caput* læve postice subtilissime punctulatum, impressionibus non profundis. *Antennæ* subfusæ, basi indeterminate rufæ. *Thorax* capite duplo latior, latitudine sesqui brevior, antice angustatus, lateribus valde rotundatis, pone medium leviter sinuatis, basi utrinque oblique truncatus, angulis posticis rectis, non rotundatis; disco parum convexus, punctatus, viridiæneus: impressionibus transversis satis distinctis, linea longitudinali utrinque abbreviata, basalibus profundis, extrorsum leviter concavis, fere ad medium extendentibus. *Elytra* thorace latiora, profunde striato-punctata, interstitiis fere planis, obsolete subtiliter punctatis. *Pedes* ferruginei.

24. \* *brevilabris*. *Supra viridiæneus, elytris obscurioribus, thorace punctato, lato, antice angustato, lateribus rotundatis, postice obsolete sinuatis, impressionibus basalibus longis, parum profundis, antennarum basi, palpis, coxis, pedibusque ferrugineis.* Long. .45, lat. .2. Habitat ad Insulam Longam Novæboraci, a Dom. Brevoort amice datum.

*C. impunctifrons?* Kirby. F. B. A. IV.

*Thoracis* forma præcedentem refert, at impressionibus basalibus longis, coxisque rufis valde distat. *Supra* viridis, elytris obscurioribus, sericeo-pubescent. *Caput* obsolete punctulatum, impressionibus frontilibus modico profundis: *labrum* brevissimum, medio late emarginatum. *Antennæ* fusæ, articulis 3 rufis. *Thorax* capite duplo latior, latitudine sesqui brevior, antice an-

gustatus, lateribus valde rotundatus, pone medium obsolete sinuatus, basi utrinque leviter oblique truncatus, angulis posticis fere rectis: disco vix convexus, margine tenuissimo diaphano, punctatus; impressionibus transversis indistinctis, linea longitudinali utrinque abbreviata, basalibus non profundis, extrorsum leviter concavis, ante medium prolongatis. *Elytra* thorace fere sesqui latiora, striato-punctata, interstitiis planis, obsolete punctatis, margine apicali rufescente. *Subtus* niger, pedes cum coxis ferruginei.

25. *impunctifrons*. Say. Trans. A. P. S. II. Habitat in provinciis mediis et occidentalibus minus frequens.

26. *tomentosus*. Say. ibid. (Epomis); Dej. Sp. Gen.

*luctuosus*. Germar. Ins. Nov. (Amara.) Habitat ubique.

27. *niger*. Randall. Bost. J. N. H. II.

*exaratus*. Dej. Cat. Habitat in provinciis mediis minus frequens.

28. *emarginatus*. Say. Trans. A. P. S. II: Dej. Sp. Gen. Habitat ubique.

29. *pusillus*. Say. ibid.

*elegantulus*. Dej. Sp. Gen. Habitat ubique sat frequens.

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ATRANUS. gen. nov.

CORPUS alatum, elongatum, gracile, leviter pubescens.

CAPUT elongatum, subrhomboideum.

MANDIBULÆ prominulæ acutæ.

MAXILLÆ intus ciliatæ.

LABRUM quadratum, latitudine paulo brevius, planum.

MENTUM leviter concavum, emarginatum, basi emarginationis recta; lateribus rectis, obliquis, angulis anticis subcutis.

† α—priv. et γεγερος—perspicuus.

**PALPI** elongati, tenues, articulo ultimo præcedentem æquante, levissime fusiformi, apice vix truncato.

**ANTENNÆ** capite thoraceque paulo longiores, tenues, articulo 3<sup>io</sup> sequentes æquante, 2<sup>do</sup> duplo brevior.

**OCULI** vix prominuli.

**THORAX** latitudine paulo longior, postice leviter angustatus, angulis posticis obtusis subrotundatis.

**PEDES** mediocres.

**TARSI** *antici* ♂ articulis 3 dilatatis, subtus spongioso-tomentosis, leviter obliquis, angulis valde rotundatis; 1<sup>mo</sup> reliquis sesqui longiore, sed non latiore, triangulari; 2<sup>do</sup>, 3<sup>io</sup> quæ latitudine non longioribus:

*reliqui* tenues, tibiis paulo brevioribus, articulis longitudine descrescentibus.

1. *pubescens*. Dej. Sp. Gen. (Anchomenus.)

*obconicus*. Hald. Proc. A. N. S. I. 299. (Specimine ipso examinato.) Habitat ubique minus frequens.

Subdiv. iii. *Panagæini*.

**CAPUT** postice constrictum, oculis extantibus.

**MENTUM** dentatum.

**LORICERA**. Latr.

1. *pilicornis*. Fabr. Syst. El: Dej. Sp. Gen. Specimina quatuor in Lacu Superiore inventa, cum Europæis accurate comparata, omnino congruunt.

**PANAGÆUS**. Latr.

1. *crucigerus*. Say. Trans. A. P. S. II.

*Sallei*. Chev. (!) MSS. teste Guex. Habitat NovAureliani minus frequens, a Dom. Guex benevole datus.

2. *fasciatus*. Say. T. A. P. S. II.: Dej. Gen. Habitat ubique, præcipue in provinciis australibus.

## SPECIES MIHI INVISÆ.

*Pogonus minutus*. Dej. Sp. Gen.

*Dicaelus furvus*. Dej. ibid.

*Dinodes rotundicollis*. Dej. Sp. Gen.

*Chlaenius circumcinctus*. Say. T. A. P. S. IV.

*virens* ? Chaud. Bull. de Moscou. 1841. Hab.  
in Louisiana.

*smaragdinus*. Chaud. ibid.

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Sub. Fam. IV.—*Carabides*.—Westwood.

*Abdominales*.—Latr.

*Simplicipedes*.—Dej.

*Carabidæ*.—McLeay.

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Divisio 1.—*Carabidea*.—Ww.

## SCAPHINOTUS. Latr.

1. *unicolor*. Oliv. Ent. tab. 7. : Fabr. Syst. El.

*heros*. Harris. Bost. J. N. H. II. Habitat in Ohio, et Carolina boreali minus frequens; a Dom. Haldeman benevole datus; variat elytris obscure violaceis. Sequente duplo major.

2. *elevatus*. Fabr. Syst. El: Oliv. Ins. tab. 7: Dej. Sp. Gen. Say. Am. Ent. Habitat in provinciis mediis minus frequens.

3. *flammeus*. Hald. Proc. A. N. S. II. 54. *Latus, nigro-violaceus, elytris cuprascentibus; thorace latitudine brevior, sublunato, marginibus latissimis minus reflexis, angulis posticis acutis, modice productis.* Long. .77, lat. .4. Specimen ad urbem St. Louis lectum a Dom. Engelmann benevole datum.

Præcedente multo latior, thorace latiore, lateribus minus

elevatis, basi late emarginato, medio non producto, elytrisque dorso multo planioribus, distinctus.

*Nigro-violaceus.* *Caput* latitudine vix duplo longius, modice convexum, plica acuta, valde elevata ad antennarum basin. *Thorax* latitudine summa capite triplo latior, latitudine brevior, sublunatus, lateribus valde rotundatus, basin versus vix angustatus, apice breviter profunde emarginatus, basi late modice emarginatus, angulis posticis acutis; disco cordiformi, lateribus antice valde rotundato, postice sinuato, vix convexo, leviter rugoso, punctis paucis sparsis; margine antico et postico elevato, impressionibus transversis profundissimis; lateribus latissimo explanatis, paulo reflexis, leviter sparso rugose-punctatis. *Elytra* ovata, a basi usque ad trientem posticam leviter dilatata, dein rotundato-acuminata, disco minus convexa, margine reflexo, versus humeros latiore; cuprascentia, margine violaceo; dense grosseque punctato-striata, seriebus marginalibus confusis. *Subtus* niger, epipleuris dense punctatis.

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CYCHRUS. Fabr.

(*IRICHROA*. Newman.)

1. *viduus*. Dej. Sp. Gen.: Harris. B. J. N. H. II.

Say. Am. Ent. pl. 45.

*unicolor*. Knoch Neuo Beit. Say. Trans. Am. Phil.

Soc. II. Habitat in provinciis mediis et australibus minus frequens. Specimen NovEboraci inventum a Dom. Wilcox benevole datum.

2. *Leonardi*. Harris loc. cit. Habitat in provinciis borealibus minus frequens.

α. elytris æneis, a Dom. Harris benevole datus.

β. major, totus niger, e provincia Ohio.

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SPHÆRODERUS. Dej.

1. *stenostomus*. Weber. Dej. Sp. Gen.: Say. Am. Ent. 45.

*Lecontei*. Laporte Cab. Habitat in Pennsylvania



minus frequens. Long. .55, lat. .23, thoracis  
 $\frac{\text{lat. .16,}}{\text{long. .12}}$

Reliquis nitidior, elytris striato-punctatis, interstitiis non interruptis facile notus.

2. *niagarensis*. Laporte. An. Soc. Ent. de France. I. 390.

*Lecontei*. LeC. MSS. Habitat NovEboraci sat frequens.

Specimine Laportiano ipso examinato, synonymiam rectam præbere possum. Insectum in Dej. Icon. Col. Europ. Tom. I. pl. 29 concinne delineatum, a thoracis forma plane ad speciem sequentem referri debet; descriptio porro Dejeaniana (Sp. Gen. II. 15) thoracem quam in *S. stenostomo* 'angustiore, minus rotundatum, magis ovalem' laudat: characteres speciei NovEboraci inventæ omnino alieni.

Long. .55, lat. .24, thoracis  $\frac{\text{lat. .16,}}{\text{long. .12}}$

Præcedente major, et elytris paulo magis elongatis. Nigro-violaceus, nitidus. *Thorax* capite fere triplo latior, antice et postice fere recte truncatus, lateribus valde rotundatis, pone medium vix rotundatis, retractis, latitudine apicali basali vix minore; disco parum convexus, tenuiter marginatus; linea longitudinali postice abbreviata, impressione transversa anteriore angulata, distincta, posteriore profunda, medio angulata, basalibus valde profundis, basi toto punctato. *Elytra* thorace paulo latiora, dorso antice leviter depressa, postice declivia, striato-punctata, interstitiis angustis, interruptis præcipue versus apicem et marginem; ad apicem elevato-granulata, costis 3<sup>ia</sup>, 7<sup>ma</sup>, 11<sup>ma</sup>que magis elevatis, interruptis. Subtus niger, femoribus quam in *S. stenostomo* paulo minus validis.

Ons.—*S. stenostomus* in Coll. Laporte, e Coll. Belvisiensi receptus ad hanc speciem quoque pertinet; specimen deforme, elytris valde planatis insigne, sed haud aliter diversum.

3. *Lecontei*. Dej. Sp. Gen.: Icon. Col. Eur. I. tab. 29.

Habitat in provinciis borealibus minus frequens; a Dom. Brevoort benevole datus; specimen quoque ad Lacum Superiorem inveni.

Long. '5, lat. '21, thoracis  $\frac{\text{lat. '14,}}{\text{long. '12}}$  Præcedenti simillimus, at paulo minor et angustior, thoracis forma, elytrisque costis magis interruptis distinctus.

Nigro-violaceus, nitidus, elytris subæneis. *Thorax* capite paulo plus duplo latior, antice posticeque fere recte truncatus, lateribus rotundatis, a medio ad basin rectis, retractis, latitudine basali apicalem æquante; disco modice convexus, tenuiter marginatus, impressionibus sicut in præcedente, sed impressione transversa posteriore multo profundiore. *Elytra* thorace paulo latiora, subelongata, modice convexa, postice declivia, profunde striato-punctata, interstitiis interruptis, 3<sup>io</sup>, 7<sup>mo</sup>, 11<sup>mo</sup>que postice magis elevatis, series tuberculorum formantibus; a triente postico ad apicem elevato-granulata; femoribus quam in præcedente validioribus.

4. **nitidicollis**. Guerin. Icon. tab. 7. Habitat in provincia Ohio; a Dom. Harris benevole datus. Reliquis duplo major, elytrorum sculptura vero sequenti similis.

5. \* **Brevoorti**. *Nigro-violaceus, nitidus, thorace subrotundato, basi profunde impresso, punctatoque, elytris basi striatis, postice granulatis, costis elevatis paucis interruptis*. Long. '5, lat. '22, thoracis  $\frac{\text{lat. '14,}}{\text{long. '12}}$  Habitat ad fines provinciæ Maine, a Dom. Jac. Brevoort inventus et amice datus.

Præcedenti similis at plus duplo minor, thorace lateribus magis regulariter rotundatis, elytrisque fere ad medium regulariter striatis, postice minus subtiliter dense granulatis.

Nigro-violaceus. *Caput* latitudine plus duplo longius, inter oculos arcuatim transversim impressum. *Thorax* capite duplo latior, antice posticeque truncatus, lateribus fere regulariter rotundatus, pone medium leviter retractus; disco marginatus, leviter convexus; linea longitudinali utrinque abbreviata, impressione transversa anteriore profunda, valde arcuata, posteriore valde profunda, basalibus rectis, basi toto grosse punctato, punctis paucis ad marginem positis. *Elytra* thorace duplo latiora, antice planiuscula, postice valde declivia; a basi ad medium

regulariter striatopunctata, pone medium minus subtiliter elevato-granulata, costis 3<sup>ia</sup>, 5<sup>ta</sup>, 7<sup>ma</sup>, 11<sup>ma</sup>que magis elevatis, interruptis, tuberculorum series formantibus. *Femora* incrassata.

6. *bilobus*. Say. Trans. A. P. S. II. Am. Ent. pl. 45.

Specimen unicum a Dom. Wilcox ad Quincy provinciæ Illinois inventum et amicissime datum.

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CARABUS. Linné.

2. *limbatus*. Say. Trans. A. P. S. II.

*Goryi*. Dej. Sp. Gen. V. Habitat in provinciis mediis sat frequens.

2. *serratus*. Say. *ibid*.

*lineatopunctatus*. Dej. Sp. Gen. II. Habitat in provinciis mediis et occidentalibus.

3. ——— \* \* \* *elytris æneis, granulatis, sutura lineisque 2 acute elevatis, postice obsoletis; costisque 3 magnis, catenatis; interstitiis obsoletissime striatis.*

Coleoptera insecti mortui ad Detroit inventa, Long. ely. .5, lat. .31. C. palustri Europæ valde similis.

4. *vinctus*. Weber. Obs. Ent.: Dej. Sp. Gen.

*interruptus*. Say. loc. cit. Habitat in provinciis mediis.

5. *ligatus*. Knoch. Neue Beit. Habitat in provinciis mediis et occidentalibus. A præcedente thorace lateribus minus rotundato, elytrisque striis angustioribus, profundius punctatis, minimeque granulatis, interstitiis subacutis distinctus.

6. *carinatus*. Dej. Sp. Gen. II. Abundat in provinciis australibus.

Præcedenti similis, at thorace magis scabroso, antice leviter angustato, elytris multo profundius striato-punctatis, interstitiis angustioribus, basi fere æqualiter elevatis, 1<sup>mo</sup>, 5<sup>to</sup>, 9<sup>no</sup>, 13<sup>mo</sup>que postice magis obsoletis.

7. *sylosus*. Say. Trans. A. P. S. II. : Dej. loc. cit. Habitat in provinciis mediis.

8. \* *Zimmermani*. Niger, capite thoraceque dense punctatis, hoc latitudine plus duplo brevior, postice retracto, basi emarginato, angulis posticis leviter productis; elytris profunde imbricato-reticulatis, punctis triplici serie pone medium vix distinctis. Long. .58, lat. .27. Specimen unicum ad Rocky Mountains lectum.

Ad Dr. Chr. Zimmerman, Monog. Amaroidum Zabroidumque auctorem, entomologicum exquirendo acerrimum, examinando oculatissimum, describendo perspicuum et accuratissimum, grato animo dedicatur hæc species.

Sequenti similis, sed sesqui minor, magisque punctatus; thorace minus abbreviato, postice magis retracto, elytris subtilius marginatis, margine ad humeros non latiore valde distinctus.

Brevis, niger. Caput dense æqualiter punctatum. Antennæ articulo 3<sup>io</sup> compresso, carinato. Thorax subcordatus, latitudine plus duplo brevior, apice late emarginatus, lateribus valde rotundatis, pone medium recte retractis, latitudine basali apicali minore; basi late emarginata, angulis posticis leviter productis, apice rotundatis: disco æqualiter parum convexus, dense punctatus, vix conspicue canaliculatus, impressionibus basalibus fere nullis. Elytra thorace plus sesqui latiora, latitudine paulo longiora, postice minus subito rotundata, pone medium non ampliata; profunde imbricato-reticulata, versus apicem grossius granulata, punctorum seriebus solitis fere obsoletis, pone medium solum paulo distinctis; tenuiter marginata, margine ad humeros non latiore.

9. *luxatus*. Say. J. A. N. S. III. (Calosoma). Habitat ad flumen Platte; ad Calosomata antennarum articulo 3<sup>io</sup> compresso appropinquat; sed apterus est, et thoracem subcordatum, angulis posticis leviter productis habet.

10. *externus*. Say. J. A. N. S. III.

*longipennis*. Dej. Sp. Gen. (Calosoma). Habitat in

provinciis mediis et occidentalibus. Propter corpus apterum, thoracemque basi leviter emarginatum cum *Carabis* collocavi hanc speciem.

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CALOSOMA. Fabr.

1. *scrutator*. Fabr. Syst. El.; Say. Dej. loc. cit. Abundat ubique.

2. \**Wilcoxi*. *Supra viridianum, æneum, vel nigroæneum; subtus aureo cæruleoque micans, pedibus chalybeis, thorace valde transverso, aureo-marginato, elytris profunde striatis, cupreo-marginatis, interstitiis transversim striatis, punctis impressis triplici serie.* Long. .77, lat. .4.

Habitat a NovEboraco ad Texas rarissime. Præcedenti simillimum, at triplo minus, thoraceque paulo brevior (latitudine triplo brevior) lateribus pone medium minus rotundato, obsolete retracto; elytrorumque striis minus profunde punctatis distinctum.

3. *frigidum*. Kirby. F. B. A. IV. Habitat ad Lacum Superiorem sat frequens.

4. *Sayi*. Dej. Sp. Gen. Habitat in provinciis australibus minus frequens.

5. *calidum*. Fabr. Syst. El.; Say. Dej. loc. cit. Habitat in provinciis mediis et occidentalibus frequens.

6. *lepidum*. LeC. Bost. J. N. H. V. pl. 18. Habitat ad flumen Yellow-stone; a Dom. J. J. Audubon amice datum.

7. *obsoletum*. Say. J. A. N. Sc. III.

*luxatum*. Dej. Sp. Gen. II. Habitat cum priore.

8. *triste*. LeC. Bost. J. N. H. V. pl. 18. Habitat cum prioribus, etiam a Dom. Audubon datum.

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## NEBRIA. Latr.

## HELOBIA. Leach. Kirby.

1. *pallipes*. Say. Trans. A. P. S. II: Dej. Sp. Gen.  
*castanipes*. Kirby. F. B. A. IV. Habitat in provinciis mediis, borealibus, et occidentalibus.

## OMOPHRON. Latr.

## SCOLYTUS. Fabr.

1. *tesselatum*. Say. J. A. N. Sc. III.  
*Lecontei*. Dej. Sp. Gen. Habitat in provinciis mediis et occidentalibus.  
*α* maculis viridibus.  
*β* maculis obscure cyaneis.
2. *americanum*. Dej. Sp. Gen.  
*labiatum*. Say. Trans. A. P. S. II.  
*Sayi*. Kirby. F. B. A. IV. Habitat in provinciis mediis et occidentalibus frequens.
3. *labiatum*. Fabr. Syst. El.: Dej. Sp. Gen. Habitat in provinciis australibus et NovEboraci.
4. \* *nitidum*. *Viridi-æneum nitidum, thorace marginibus punctato, lateribus argenteo-marginato, clytris tenuiter striatis, seriatim foveatis, apice lævibus, margine tenui, maculisque 3 marginalibus, antennis, palpis pedibusque pallidis.* Long. .23, lat. .15. Habitat in Territorio Missouriensi, et in provinciis occidentalibus minus frequens.

Hemisphæricum, viridiæneum, per-nitidum. *Caput* postice sparse punctatum, naso, labro, mandibulisque obscure testaceis. *Thorax* basi trisinuatus, medio subangulato, marginibus omnibus late disperse punctatis, disco plaga brevi, lata, fere lævi; lateribus anguste argenteo-marginatis. *Elytra* margine tenui, mox pone humeros triangulariter dilatata, fascia pone medium obliqua introrsum valde abbreviata, maculaque apicali testaceo-



pallidis; colore viridiæneo ad suturam non abbreviato; grosse seriatim punctata, punctis striis longitudinalibus tenuissimis conjunctis. Subtus nigrum, epipleuris, palpis, antennis, pedibusque pallidis.

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BLETHISA. Bonelli.

1. *quadricollis*. Hald. Proc. A. N. S. III. Specimen ad Lacum Superiorem inventum, a Dom. Haldeman amicissime datum. Habitat quoque ad Boston provincie Massachusetts. Mus. Harris.

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ELAPHRUS. Fabr.

1. *Clairvillei*. Kirby. F. B. A. IV.  
*fuliginosus?* Say. Trans. A. P. S. IV.  
*americanus?* Dej. Sp. Gen. (Spec. minus.) Habitat in provinciis mediis et occidentalibus rarissime.
2. \**cicatricosus*. *Obscure æneus, capite punctato, inter oculos sub-elevato, impressoque; thorace grosse, subconfluentem punctato, impressionibus pluribus; elytris foveis ocellatis subpurpureis, interstitiis nitidis, parce punctatis.* Long. .35, lat. .15. Specimen unicum e provincie Nov Eboraci medio.

Præcedenti simillimus, at thorace irregulariter impresso, grossius punctato, elytrorumque interstitiis fere lævibus valde differt.

Subelongatus, obscure æneus, supra nigro-æneus. *Caput* punctatum, plaga parva lævi utrinque pone oculos; inter oculos linea arcuata minus profunda, foveaque oblonga notatum. *Thorax* capite cum oculis angustior, latitudine non brevior, lateribus antice rotundatus, pone medium valde contractus, sinuatusque, angulis posticis rectis, acutis; disco sparse grosseque punctatus, hic illic densius: linea longitudinali nulla; antice posticæ equo longitudinaliter elevatus, fovea oblonga utrinque ante medium et prope basin, punctisque duobus ad medium approximatis, fovea utrinque basali, duobusque vel tribus utrinque versus latera.

*Elytra* foveis purpureis, magnis, ocellatis (nonnullis antice emarginatis) medio punctatis, serie quadruplici impressis; interstitiis nitidis, fere lævibus, punctis paucis sparsis.

3. *intermedius*. Kirby. F. B. A. IV. Specimen prope Long's Peak inveni; sequente duplo major, thoraceque multo latiore.

4. *ruscarius*. Say. Trans. A. P. S. IV.

*riparius*. Say. ibid. II.: Dej. Sp. Gen. Sequenti similis, at thorace postice magis subito constricto, impressione transversa anteriore profunda, ad marginem lateralem extendente, foveisque elytralibus profundis satis distinctus. Cum speciminibus Europæis accurato comparatus, longe differt. Habitat ubique.

5. \* *similis*. *Brunneo-æneus, punctatissimus, thorace postice retracto, lateribus sinuato, impressione transversa anteriore minus profunda, disco utrinque medio leviter foveato: elytris foveis rotundatis minus impressis, plagaque quadrata lævigata.* Long. 24, lat. 10. Habitat ad Long's Peak.

Præcedenti similissimus, at colore minus obscuro, thorace postice minus constricto, angulis rectis, minus divaricatis, impressionibus minus profundis: elytris minus convexis, foveis vix purpureis, puncto elevato (sicut in præcedente), multo minus notatis; interstitiis vix elevatis, punctatissimis, plaga solum una, quadrata, lævigata inter foveas 2<sup>ndam</sup> et 3<sup>iam</sup> ad suturam. Subtus viridiæneus, dense punctatus, femoribus basi, tibiis tarsisque ferrugineis.

#### NOTIOPHILUS. Dumeril.

1. \* *confusus*. *Nigro-æneus, pernitidus, capite inter oculos 7-striato, thorace impressionibus basalibus modice profundis, elytris striis 7, cum suturali marginalique punctatis, fere integris, punctoque impresso, antennarum basi rufo-piceo.* Long. 19. Habitat ubique.

A *N. biguttato* Europæ stria submarginali non oblitterata, marginalique postice punctata valde distinctus.

Nigro-aeneus, pernitidus. *Caput* ante oculos striolis brevibus, punctisque 4 impressum: inter oculos 7-striatum, striis externis paulo profundioribus, interstitiis angustis, rectis. *Thorax* fere planus, postice modice retractus, marginibus omnibus disperse punctatis, densius versus angulos anticos; impressionibus basaliibus modice profundis, non acute impressis. *Elytra* stria suturali, 7 externis, marginalique punctatis, striis postico parum abbreviatis, suturali, 1<sup>ma</sup> 6<sup>ta</sup>que postice profundioribus: puncto utrinque inter 2<sup>dam</sup> et 3<sup>iam</sup> ante medium. Subtus niger, tibiis anticis picescentibus.

2. *semistriatus*. Say, Trans. A. P. S. II. Habitat ubique

Præcedenti affinis, at minor, striis 1<sup>ma</sup>, 2<sup>da</sup>, 7<sup>ma</sup>que postice oblitteratis; antennis concoloribus, nigris. *Caput* striis brevioribus, minus profundis, alteraque postico inter externas duas.

3. \* *9-striatus*. Long. 18. Habitat in provinciis australibus, et mediis. *N. semistriato* omnino similis; differt tantum capite inter oculos 9-striato, striis externis profundioribus, alteraque brevior utrinque inter 1<sup>am</sup> et 2<sup>am</sup> medio late interrupta.

4. *porrectus*. Say, Trans. A. P. S. IV. Habitat NovEboraci. Capite 7-striato, striis externis multo profundioribus a reliquis magis remotis, striola antica, alteraque medio late interrupta inter duas externas. *Elytra* sicut in præcedentibus duobus: antennis, palpis pedibusque rufo-testaceis valde distinctus.

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SPECIES MIHI IGNOTÆ.

*Cychrus Andrewsii*. Harris. Bost. J. N. H.

*Carabus carolinus*. Fabr. Syst. El. (An species recto Americana?)

*Beauvoisii*. Dej. Sp. Gen.

*Lherminieri*. Dej. ibid.

**Elaphrus obscurior.** Kirby. F. B. A.

Sub. Fam. V.--*Bembidiides*.—Westwood.

*Subulipalpi*.—Latr. Dej.

**BEMBIDIUM.** Latr.

CAPUT fronte utrinque striato.

MENTUM dente bifido.

ELYTRA stria scutellari distincta, suturali postice non recurvata.

TARSI antichi ♂ articulo 1<sup>mo</sup> longitudine reliquis conjunctis æquante.

1. **sigillare.** Say. Trans. A. P. S. IV.

*stigmaticum.* Dej. Sp. Gen. Habitat in provinciis mediis.

2. **impressum.** Fabr. Syst. El.: Dej. loc. cit. Habitat ad Lacum Superiorem.

3. **paludosum.** Panzer: Dej. Sp. Gen.: Icon. IV. tab. 211.  
*littorale.* Oliv. Habitat ad Lacum Superiorem.

Ab individuis Europæis maculis elytralibus subcupreis majoribus, plagam magnam ad striam 3<sup>iam</sup> extendentem formantibus, a Dom. Zimmerman differre dicitur hæc species. Speciminibus tamen plurimis accurate examinatis, maculæ magnitudinis variabilis videntur, nunc discretæ, nunc confluentes; semper tamen interstitium 6<sup>tum</sup> maculam longam nitidum ad medium habet. Specimina necnon Europæe pariter variant. (Conf. Dej. Sp. V. 80.)

4. \* **lacustre.** *Ænecum, thorace quadrato, lateribus leviter sinuato, elytris striato-punctatis, subtilissime granulatis interstitiis 4<sup>to</sup> 6<sup>to</sup>que immaculatis, 5<sup>to</sup>, 7<sup>mo</sup>que macula parva nitida: 3<sup>io</sup> foveis quadratis duabus impressis.*  
Long. .21. Habitat ad Lacum Superiorem.

Præcedenti simillimum, thorace postice magis sinuato, elytris profundius striato-punctatis, versus basin minus elevatis, inter-

stitio 4<sup>to</sup> 6<sup>to</sup>que immaculatis, antennarumque articulis 2 rufis distinctum.

*Æneum.* *Caput* sicut in *B. paludoso*. *Thorax* latitudine paulo brevior, lateribus ante medium rotundatus, pone medium sinuatus, angulis posticis acutis, antice obsolete angustatus, postice vix retractus, basi utrinque valde obliqua: subtiliter rugosus, antice posticeque striatus, disco modice convexus; impressionibus transversis distinctis, posteriore profunda, linea longitudinali profunda utrinque abbreviata, basalibus profundis. *Elytra* profundius striato-punctata, interstitiis leviter convexis, duobus primis violaceo-nitidis, apice granulatis, 3<sup>io</sup> nitido, foveis 2 quadratis, granulatis, utraque puncto antico notata; 4<sup>to</sup> 6<sup>to</sup>que immaculatis, granulatis, 5<sup>to</sup> macula parva nitida ad medium, 7<sup>mo</sup> macula parva ad trientem secundum; stria 4<sup>ta</sup> sicut in præcedente sinuata. Subtus æneus, pernitidus, femorum basi, tibiis tarsisque rufis.

5. *inaequale*. Say. J. A. N. S. III.

*arenarium*. Dej. Sp. Gen. V. 81. Habitat in Pennsylvania, et ad Rocky Mountains: a præcedentibus thorace latitudine non breviori valde distinctum. *Elytra* profunde striato-punctata sunt, et interstitium 4<sup>um</sup> maculam nitidam ad medium habet, maculis reliquis sicut in *B. lacustri*.

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ODONTIUM. gen. nov.

MENTUM dente longissimo, convexo, subobtus. Reliquis sicut in *Bembidio*.

1. *coxendix*. Say. J. A. C. III. Habitat ad Rocky Mountains. Sequenti simillimum, at thorace latitudine plus sesqui breviori, lateribus valde rotundato, postice profundius sinuato, retractoque; elytrorum disco non testaceo, femoribusque piceis facile dignoscendum.

2. *nitidulum*. Dej. Sp. Gen. V. 84.

*coxendix*. Say. Trans. A. P. S. IV. Habitat ubique.

HYDRIUM. Zim. MSS.

CAPUT fronte utrinque striato.

MENTUM dente valde distincte bifido.

ELYTRA striis postice abbreviatis, scutellari distincta.

TARSI antici ♂ articulo 1<sup>mo</sup> valde dilatato, reliquis tamen brevior.

1. *laevigatum*. Say. Trans. A. P. S. II.: Dej. Sp. Gen. (Lejā.) Habitat ubique, frequentius in provinciis occidentalibus. In speciminibus bene conservatis, e seriebus punctorum interstitialibus setae distinctae brunneae oriuntur.

OCHTHEDROMUS. Zimmerman. MSS.

CAPUT fronte utrinque striato, vel raro bistriato.

MENTUM dente simplici, apice rotundato plerisque.

THORAX postice truncatus.

ELYTRA stria suturali postice non incurvata, scutellari distincta.

Genera Megerliana Notaphum, Peryphum, Lejam et Lopham, cum speciebus aliis intermediis continens.

A. Elytris striis externis integris.

§ 1. Elytris immaculatis: interstitio 3<sup>io</sup> ad striam 3<sup>iam</sup> bipunctato.

1. *americanus*. Dej. Sp. Gen. Habitat ubique usque ad Rocky Mountains.
2. \* *salebratus*. *Aeneus, nitidus, thorace quadrato, lateribus obsolete sinuato, postice vix retracto, impressione transversa posteriore profunda, elytris profunde striato-punctatis, punctisque 2 impressis; antennarum basi, pedibusque rufo-piceis.* Long. .16. Habitat ad LaPointe Lacus Superioris.

Forma fere O. antiqui (Dej.) at duplo minor, thorace latiore, postice vix angustato.

*Aeneus, nigricans, nitidus.* Caput impressionibus frontalibus



longis rectis, profundis. *Antennæ* piceæ, basi rufo-piceæ, vel rufæ. *Palpi* rufi. *Thorax* capite latior, latitudine sesqui-brevior, antice posticeque truncatus, lateribus paulo rotundatis, pone medium obsolete sinuatis, parum retractis, basi utrinque obliquo, angulis posticis obtusis, minime rotundatis: linea longitudinali profunda, antice abbreviata, impressione transversa posteriore profunda, medio angulata, basalibus parvis, profundis, punctoque impresso ad angulum. *Elytra* thorace sesqui latiora, leviter convexa, striis antice valde profunde punctatis, postice lævibus, 1<sup>ma</sup>, 2<sup>da</sup>, 7<sup>ma</sup>, 8<sup>va</sup>que postice profundioribus. Subtus niger, vix æneus, pedibus rufo-piceis.

3. \* *purpurascens*. *Niger vix æneus, thorace quadrato, postice vix angustato, impressione transversa posteriore profunda; elytris rufo-purpureis, profunde striato-punctatis, punctisque 2 impressis; antennarum basi pedibusque rufo-piceis*. Long. .17. Habitat ad Lacum Sabulosam prope Mississippi scaturigines.

*Niger vix æneus, subdepressus. Caput impressionibus frontilibus longis, rectis, profundis. Thorax capite sesqui latior, latitudine sesqui brevior, antice leviter emarginatus, basi rotundatus, lateribus antice rotundatis, postice vix angustatus, angulis posticis obtusis, non rotundatis; linea longitudinali vel integra, vel utrinque abbreviata, impressione transversa posteriore profunda, basalibus duplicibus, punctiformibus, basi versus angulos obsolete rugose punctata. Elytra planiuscula, rufo-purpurea, thorace sesqui latiora, striis profunde punctatis, postice lævibus: 1<sup>ma</sup> 7<sup>ma</sup>que ad apicem paulo profundioribus. Subtus niger, pedibus rufo-piceis. Variat striis elytrorum aureo-micantibus.*

4. *basalis*. *Æneus, nitidus, subdepressus, thorace quadrato, lateribus subsinuato, postice paulo retracto, impressionibus transversis profundis: elytris profunde striato-punctatis, punctisque 2 impressis: antennarum articulo 1<sup>mo</sup>, pedibusque rufis*. Long. .23. Habitat in provinciis mediis. Sequentibus 3 similis, at thoracis forma facile distinctus.

*Bembidium honestum*? Say. Trans. A. P. S. II.

*Æneus*, nitidus. *Caput* impressionibus frontalibus longis, rectis, profundis. *Antennæ* articulo 1<sup>mo</sup> rufo, palpi basi rufi. *Thorax* capite latior, latitudine vix sesqui brevior, apice fere truncatus, basi utrinque obliqua, lateribus paulo rotundatus, pone medium vix sinuatis, ad basin paulo retractis, angulis posticis rectis, prominulis: linea longitudinali tenui, utrinque abbreviata; impressionibus transversis profundis, leviter arcuatis, basali utrinque parva, leviter rugosa. *Elytra* thorace plus sesqui latiora, planiuscula, profunde striato-punctata, striis ad apicem levibus. Subtus nigro-virescens, pedibus læte rufo-piceis.

Variat chalybeus.

5. \* *dilatatus*. *Æneus*, nitidus, depressus, thorace lateribus valde rotundatis, postice, sinuatis, valde retractis, impressione posteriore profunda, elytris striato-punctatis, punctisque 2 impressis: antennarum articulo 1<sup>mo</sup> pedibusque rufis. Long. .23. Habitat ad Columbian, Pa.

Præcedente paulo major, et magis depressus: elytra quam in sequentibus duobus minus profunde striata sunt.

*Æneus*, depressus. *Caput* impressionibus frontalibus profundis, longis, leviter sinuatis. *Thorax* capite latior, latitudine duplo brevior, antice fere truncatus, basi utrinque obliquo; lateribus valde rotundatus, versus basin valde retractus, breviterque sinuatus, angulis posticis obtusis non rotundatis; linea longitudinali utrinque abbreviata, impressionibus transversis distinctis, posteriore profunda, basalibus parvis, profundis. *Elytra* thorace vix sesqui latiora, striato-punctata, striis postice levioribus, impunctatisque, interstitiis planis. Subtus nigro-virescens, pedibus læte rufo-piceis.

6. *antiquus*. Dej. Sp. Gen. Habitat in provinciis mediis et ad Lacum Superiorem.
7. *chalcæus*. Dej. ibid. Habitat in provinciis mediis minus frequens; thoraco convexiore, postice magis subito retracto, impressione transversa anteriore fere nulla facile dignoscendus.

8. \* *planatus*. *Elongatus, valde depressus, nigro-æneus, thorace quadrato, postice vix retracto, angulis posticis rectis, impressionibus transversis profundis; clytris tenuiter striato-punctatis, punctisque 2 impressis, stria 5<sup>ta</sup> apice exarata. Long. .3. Abundat ad Lacum Superiorem Augusto.*

Magnus in hoc genere: elongatus, valde depressus, nigro-æneus. Caput impressionibus frontilibus longis, rectis, extus leviter curvatis. Thorax quadratus, latitudine paulo brevior, antice posticeque truncatus, lateribus vix rotundatus, postice sub-sinuatus, paulo angustatus, angulis posticis rectis, minime rotundatis; linea longitudinali profunda, antice abbreviata, impressionibus transversis profundis, anteriore angulata; basalibus latis, rugosis, bistriatis, carina brevi externa acuta. Elytra thorace vix sesqui latiora, elongata, plana, parum nitida, tenuiter striato-punctata, stria 5<sup>ta</sup> postice obsoleto sinuata, profunde exarata. Tibiæ picescentes.

9. \* *longulus*. *Elongatus depressus, niger, thorace quadrato, lateribus rotundato, postice leviter angustato, impressione transversa posteriore basalibusque profundis, clytris subæneis, profunde striato-punctatis, punctisque 2 impressis: striis 4<sup>ta</sup> 5<sup>ta</sup> 6<sup>ta</sup>que apice subobsoletis. Long. .15. Habitat ad Aquilæ Portum Lacus Superioris.*

Habitus fere Dromii americani, elongatus, valde depressus, niger, nitidus. Caput impressionibus frontilibus rectis, profundis. Thorax capite latior, latitudine sesqui brevior, apice basique truncatus, lateribus antice rotundatis, pone medium fere rectis, leviter retractis, angulis posticis obtusis non rotundatis; disco leviter convexus; linea longitudinali antice abbreviata, impressione transversa anteriore tenui, margini approximata, arcuata, posteriore profunda, fere recta, basalibus profundis, duplicibus, carina externa brevi, acuta. Elytra subænea, thorace vix sesqui latiora, elongata, plana, apice rotundato-subtruncata, profunde striato-punctata, striis postice impunctatis, 4<sup>ta</sup>, 5<sup>ta</sup>, 6<sup>ta</sup>que versus apicem subobsoletis, 7<sup>ma</sup> postice profundiore.

10. \* *subaeneus*. *Nigroaeneus*, thorace lateribus rotundato, postice leviter retracto, impressionibus transversis basalibusque profundis, elytris valde profunde striato-punctatis, punctisque 2 impressis; striis 4<sup>ta</sup>, 5<sup>ta</sup>, 6<sup>ta</sup>que apice subobliteratis. Long. 15. Habitat ad Lacum Superiorem.

Statura omnino *O. salebrati*, at pedibus nigris; thoracis forma præcedentem refert, a quo corpore minus depresso, elytrisque profundius striatis distinctus.

*Nigro-aeneus*, pernitidus. *Caput* impressionibus frontalibus profundis, rectis. *Thorax* capite latior, latitudine sesqui brevior, utriusque truncatus, lateribus ante medium modice rotundatis, pone medium fere rectis, retractis, angulis posticis obtusis non rotundatis; disco subconvexus; linea longitudinali profunda, antice abbreviata, impressionibus transversis profundis, anteriore arcuata, a margine remota, basalibus profundis, rugosis, bistriatis, carina externa brevi, minus conspicua. *Elytra* thorace sesqui latiora, modice convexa, striata, striis valde punctatis, postice lævibus, 4<sup>ta</sup>, 5<sup>ta</sup>, 6<sup>ta</sup>que postice subobsoletis, suturali, 2<sup>da</sup>, 7<sup>ma</sup>que versus apicem profundis.

Intermedius videtur inter sectionem hanc et §2. B. ††. (Sp. 39, et 40.)

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†† *Elytris* maculis variis fasciiformibus, testaceis; interstitio 3<sup>io</sup> bipunctato; thorace basi bistriato, carinatoque.—*NOTAPHUS*. Meg.

11. \* *cordatus*. *Depressus*, æneus, thorace lateribus valde rotundato, postice valde coarctato; elytris fasciis duabus, apiceque testaceis; striis basi leviter punctatis, interstitiis planis; antennarum basi epipleuris pedibusque rufo-testaceis. Long. 25. Habitat Nov-Eboraci minus frequens.

Sequentibus plus duplo major, valde depressus, æneus, minus nitidus. *Caput* latum, antice acutum, impressionibus frontalibus non profundis, leviter obliquis. *Antennæ* capite thoraceque paulo longiores, fuscae, basi rufo-testaceæ. *Thorax* capite cum oculis

vix latior, latitudine fere duplo brevior, apice basique truncatus, lateribus valde rotundatis, postice valde retractis breviterque sinuatis, (latitudine basali latitudine summa duplo fere minore) angulis posticis rectis non rotundatis; fere planus; linea longitudinali tenui, utrinque abbreviata, impressionibus transversis indistinctis, basalibus parvis, bistriatis, stria interiore paulo longiore, carina externa, distincta. *Elytra* thoracis latitudine summa vix latiora, plana, striata, striis ante medium leviter punctatis, interstitiis omnino planis, fascia obliqua ante medium ad striam 2<sup>ndam</sup> extendente, intus bifurcata, extus latiore; altera angulata ad trientem secundum, intus ad striam 3<sup>iam</sup> extendente, parte interna nonnunquam vix distincta; apiceque lato obscure testaceis; margine summo ante medium æneo. Subtus niger, epipleuris pedibusque testaceis.

a. fascia antica interstitium 3<sup>ium</sup> 4<sup>um</sup>que includente et ad basin extendente, maculam æneam humeralem amplectente.

12. *dorsalis*. Say. Trans. A. P. S. II. Dej. Sp. Gen. Habitat ad Rocky Mountains; thorace splendido viridiæneo, elytrisque testaceis fasciis fuscis facile dignoscendus.

13. \**umbratus*. Capite thoraceque æneis, hoc basi vix retracto, rugoso, bistriato, elytris striato-punctatis, testaceis, fascia ad medium sinuata, maculaque postica subsuturali leviter obscuris, antennarum basi, pedibus, epipleurisque testaceis. Long. 17. Habitat ad Rocky Mountains.

Præcedente duplo minor. Caput æneum, parum nitidum, impressionibus frontalibus, fere rectis, profundis. Antennæ corporis dimidium æquantes, fuscæ, basi testacæ. Thorax capite latior, latitudine sesqui brevior, quadratus, lateribus parum rotundatus, pone medium levissime retractus, obsoleteque sinuatus, angulis posticis fere obtusis, non rotundatis; æneus, parum nitidus, basi rugosus; linea longitudinali profunda, utrinque abbreviata, impressionibus transversis distinctis, basalibus modicis, bistriatis, carina distincta. *Elytra* thorace paulo latiora, elongato-elliptica, postice leviter angustata, striato-punctata, stria 5<sup>ta</sup> versus apicem leviter sinuata, integra, interstitiis levissime

convexis; obscure testaceis, puncto nigro ante medium, fascia undata, angusta ad medium, maculaque magna postica subsuturali, nonnunquam communi, leviter infuscatis. Subtus niger, epipleuris, pedibusque testaceis.

α. elytris basi late obsoleteque infuscatis.

14. \* *viridicollis*. Ferté. Rev. Zool. 1841. Specimen unicum ad Rocky Mountains inventum.

Thorace obscure viridiæneo, convexiusculo, latitudine paulo brevior, lateribus rotundato, postico angustato, angulis posticis rectis, prominulis, elytris profunde striato-punctatis, interstitiis leviter convexis, maculis latis, fere indeterminatis, epipleuris nigris, pedibus testaceis, facile dignoscendus.

15. *patruelis*. Dej. Sp. Gen. Habitat ubique; a sequente elytris paulo profundius striatis, epipleurisquo pallidis satis distinctus.

16. *variegatus*. Say. Trans. A. P. S. II. Habitat ubique; epipleuræ nigræ.

17. \* *æneicollis*. Capite thoraceque cupreo-æneis, nitidis, hoc lato, lateribus rotundato, postice leviter retracto, non sinuato, basi bistriato, elytris striato-punctatis, rufo-piceis, margine ante medium lato, fascia brevi postica, apiceque pallidioribus; antennarum basi, pedibus epipleurisque rufis. Long. 17. Habitat ad Lacum Superiorem.

Præcedenti similis, at thorace nitidiore, lateribus non sinuato, angulis posticis obtusis, elytrisquo rufo-piceis differt.

Caput cupreo-æneum, impressionibus frontalibus profundis subobliquis, antennæ fuscæ, basi testaceæ. Thorax capite sesqui lator, latitudine fere duplo brevior, utrinque truncatus, lateribus rotundatus, postice leviter retractus, (latitudine basali apicalem æquante), non sinuatus, angulis posticis obtusis non rotundatis; disco vix convexus, linea longitudinali subintegra, impressione transversa posteriore recta, basalibus latis, distinctius breviter bistriatis, carina externa distincta. Elytra thorace paulo latiora, convexiuscula, striis (externis paulo levioribus) ante medium



punctatis, interstitiis levissime convexis, 7<sup>ma</sup> postice profundiore; rufo-picea, margine ante medium, in fasciam abbreviatam fere transversam ad trientem dilatato; fascia oblique ascendente pone medium, apiceque rufo-testaceis. Subtus niger, epipleuris pedibusque rufo-testaceis.

18. \* *rapidus*. *Nigroaeneus*, thorace lateribus rotundato, postice retracto, subsinuato, basi bistriato, impressionibus transversis profundis, clytris striato-punctatis, interstitiis planissimis, fascia brevi, obliqua ante apicem, apiceque rufo-testaceis; antennarum basi, pedibusque dilutius rufo-piceis. Long. .15. Habitat ad Rocky Mountains.

O. patrueli magis elongatus, depressusque. *Nigroaeneus* subnitidus. Caput impressionibus frontalibus subobliquis, leviter notatis. Antennæ fuscæ, basi testaceæ. Thorax capite paulo latior, latitudine plus sesqui brevior, apice basique truncatus, lateribus rotundatus, pone medium retractus, brevissime sinuatus, angulis posticis rectis, latitudine basali apicali minore; disco parum convexus; linea longitudinali tenui, utrinque abbreviata, impressionibus transversis distinctis, basalibus profundis, bistriatis, tuberculo obsoleto ad angulum posticum; carina externa distincta. Elytra thorace latiora, elongata, depressiuscula, striis tenuiter punctatis, versus apicem levibus, 7<sup>ma</sup> paulo profundiore, interstitiis planissimis; macula oblique ascendente pone medium, apiceque lato testaceis. Subtus niger, pedibus dilute piceis, tibiis tarsisque nonnunquam pallidioribus.

19. \* *timidus*. *Nigro-viridis*, vix aeneus, thorace convexiusculo, subcordato, basi bistriato, impressionibus transversis profundis; clytris elongato-ellipticis, striato-punctatis, basi late testaceo-nébulosis, fascia integra sinuata pone medium, apiceque obscure testaceis; antennarum articulo 1<sup>mo</sup> pedibusque picco-testaceis. Long. .12. Specimen unicum ad Rocky Mountains inventum.

Præcedente triplo minor, elongatus, subconvexus, nigro-viridis. Antennæ articulo 1<sup>mo</sup> rufo-picco. Thorax capite paulo latior, latitudine sesqui brevior, apice basique truncatus, later-

ibus valde rotundatis, postico retractis, subsinuatis; latitudine basali apicali minore; disco convexus; linea longitudinali antice abbreviata, impressionibus transversis profundis, basalibus parvis rugosis, bistriatis, carina distincta. *Elytra* thorace paulo latiora, elongata, elliptica, subconvexa, nigro-picea, usque ad medium testaceo-nebulosa, pone medium fascia curvata ad suturam extendente, maculaque parva apicali testaceis; profunde striato-punctata, striis postice paulo levioribus, et minus distincte punctatis, interstitiis ad basin levissime convexis. Subtus niger epipleuris fusciscentibus, pedibus dilute piceo-testaceis.

20. \* *pictus*. *Niger, capite thoraceque nitidissimis, hoc convexo, subcordato, basi minus distincte bistriato, elytris profunde striato-punctatis, striis externis ad apicem oblitteratis; versus basin late testaceo-nebulosis, fascia obliqua pone medium, apice, epipleuris, antennarum basi, pedibusque testaceis. Long. .10. Habitat ad Rocky Mountains.*

Statura sequentis, sed thorace convexiore, lateribus magis sinuatis distinctus.

*Niger, obscure æneus. Caput oblique valde profunde striatum. Antennæ basi rufæ. Thorax capite vix latior, latitudine sesqui brevior, utrinque truncatus, lateribus valde rotundatus, pone medium valde retractus, (latitudine basali apicali sesqui minore,) sinuatus, angulis posticis rectis prominulis; disco convexus, linea longitudinali antice abbreviata, impressionibus transversis profundis, basalibus parvis, profundis, rugosis, minus distincte bistriatis; carina brevissima. Elytra fere elliptica, thorace vix latiora, convexa, profunde striato-punctata, striis externis postico oblitteratis, 7<sup>ma</sup> ad apicem paulo profundiore; nigro-picea ante medium testacea, macula humerali, suturaque nigro-piceis, fascia obliqua pone medium ad striam 3<sup>iam</sup> extendente, apiceque testaceis. Subtus niger, epipleuris pedibusque testaceis.*

α. *Elytra testacea, macula communi pone medium ephippiata, ramoque obliquo ad marginem extendente nigro-piceis.*

β. *Elytra nigro-picea, ante medium obsolete testaceo-nebulosis, maculis pone medium solitis.*

γ. Elytra nigra, fascia obliqua, brevi, postica.

21. *versicolor*.

*variegatus*. Kirby. F. B. II. IV. (Notaphus). Abundat at Lacum Superiorem. Propter *O. variegatum* Sayi, supra citatum, nomen mutavi.

Præcedenti similis, sed thorace minus convexo, lateribus obsolete sinuato, angulis posticis vix rectis, impressionibus basalibus latioribus, carina distinctiore, differt.

22. *contractus*. Say. Trans. A. P. S. II. Habitat Nov-

Eboraci minus frequens; a sequenti thorace convexiore, impressionibus basalibus brevioribus, carina nulla, epipleurisquæ nigris satis distinctus.

23. *constrictus*.

*contractus*. Dej. Sp. Gen. Abundat ad maris oras A Sayo cum præcedente confusus; differt tamen thorace paulo minus convexo, impressionibus basalibus paulo longioribus, carinaque externa brevissima vix conspicua; elytris margine, epipleurisquæ pallidis.

B. Elytris striis postico oblitteratis.

§1. Thorace basi valde constricto, unistriato. LOPHA Meg.

24. *affinis*. Say. Trans. A. P. S. II.

*decipiens*. Dej. Sp. Gen. Abundat ubique.

25. *quadrinaculatus*: Linné. Syst. Nat.: Dej. Sp. Gen.

*oppositus*. Say. Trans. A. P. II. Habitat ubique.

26. *\*frontalis*. *Parvus, niger nitidus; capite utrinque bistrato, thorace valde cordato, antice posticeque grosse punctato, elytris punctato-striatis, striis postice oblitteratis, macula ante apicem, apice, antennarum basi, pedibusque testaceis*. Long. '09: Habitat ad Detroit, minus frequens.

Præcedente plus duplo minor, niger, pernitidus, obsolete æneus. Antennæ fuscæ basi testaceæ. Caput utrinque profunde oblique

bistriatum, stria exteriori lata, postice abbreviata, interiore longa. *Thorax* capite vix latior, latitudine paulo brevior, postice valde angustatus, angulis posticis rectis prominulis; convexus; impressionibus transversis e punctis grossis constitutis, linea longitudinali fere obsoleta, basalibus parvis, profundis, carina externa brevissima notatis. *Elytra* thorace duplo latiora, antice leviter angustata, convexa, punctato-striata, striis postice oblitteratis, macula rotundata ante apicem, apiceque testaceis. Subtus niger, pedibus dilute testaceis.

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§2. Thorace postice plus minusve retracto, nonnunquam fere quadrato, basi utrinque bistriato; elytris bipunctatis.

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† Capite utrinque profunde bistriato.

27. \* *sulcatus*. *Nigro-virescens, pernitidus, capite utrinque profunde bistriato, thorace postice modice retracto, lateribus vix sinuatis; elytris striato-punctatis, macula ante apicem, apice, antennarum basi, pedibusque testaceis. Long. 12. Habitat ad Lacum Superiorem.*

Statura gracilis. *Nigro-virescens, pernitidus. Caput* utrinque profunde longeque bistriatum, stria exteriori latiore. *Antennae* piceae basi rufo-piceae. *Thorax* capite latior, latitudine sesqui brevior, subquadratus, postice modice angustatus, utrinque truncatus, lateribus rotundatis pone medium subsinuatis, angulis posticis rectis; disco paulo convexus; linea longitudinali sub-integra, impressionibus transversis distinctis, basalibus latis minus distincte bistriatis, carina externa valde distincta. *Elytra* thorace latiora, convexiuscula, striato-punctata, striis versus apicem oblitteratis, externis levioribus, 1<sup>ma</sup> & 2<sup>nda</sup> fere integris, 7<sup>ma</sup> vix distincta, interstitiis ad basin leviter convexis; macula ante apicem, marginem non attingente, apiceque testaceis. Subtus niger, pedibus testaceis.

28. \* *trepidus*. *Nigro-virescens, pernitidus, capite utrinque profunde bistriato, thorace postice leviter retracto, lateribus vix sinuato; elytris punctato-striatis, interstitiis planissimis, striis ad apicem oblitteratis, externis levior-*

*ibus; macula ante apicem, apice, antennarum basi pedibusque testaceis. Long. 12. Specimen unicum ad Lacum Superiorem inventum.*

Præcedenti simillimus, sed elytris punctato-striatis, interstitiis planissimis distinctus videtur.

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†† Capite utrinque unistriato.

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a. *Corpus gracile. PERYPHUS* Meg.

29. \* *cautus*. *Ater, pernitidus, thorace convexo, leviter cordato, basi bistriato, angulis posticis prominulis; elytris profunde striato-punctatis, macula parva postica apiceque flavo-testaceis; antennarum basi pedibusque dilutius rufo-piceis. Long. 12. Specimen unicum ad Rocky Mountains lectum.*

*Ater, pernitidus; caput impressione frontali valde profunda, longa, obliqua. Antennæ corporis dimidium longitudine æquant, basi rufo-piceæ. Thorax cordatus, capite non latior, utrinque truncatus, lateribus rotundatis, pone medium sinuatis modiceque retractis, angulis posticis rectis, prominulis; linea longitudinali utrinque abbreviata, impressionibus transversis profundis, basalibus profundis, rugosis, obsolete punctatis, bistriatis, carina distincta. Elytra thorace sesqui latiora, elongata, fere elliptica, convexa, profunde striato-punctata, striis versus apicem oblitteratis, 7<sup>ma</sup> ad medium extendente, interstitiis antice leviter convexis, 3<sup>io</sup> profundius bipunctato: nigro-picea, macula parva rotundata ante apicem, apiceque flavo-testaceis. Subtus niger, pedibus dilutius rufo-piceis.*

30. \* *gelidus*. *Elongatus, capite thoraceque nigro-viridibus, hoc cordato, postice coarctato, impressionibus basalibus valde profundis, obsolete punctatis; elytris piceis, nitidis, ad basin infuscat, macula ante apicem rufo-testacea, striato-punctatis; antennarum basi pedibusque rufo-testaceis. Long. 17. Abundat ad Lacum Superiorem.*

Sequentibus angustior et minor. *Caput* nigro-viride, nitidum, impressionibus frontalibus obliquis, punctoque externo antico utrinque. *Antennæ* corporis dimidio paulo longiores, picæ, basi rufo-testaceæ. *Thorax* longitudine non latior, cordatus, lateribus valde rotundatis, pone medium sinuatis, retractisque, angulis posticis rectis; convexus, nigro-viridis; linea longitudinali integra, impressione transversa anteriore nonnunquam geminata, parte anteriore profunda; basalibus valde profundis, obsolete punctatis, stria exterior vix conspicua, carina distincta. *Elytra* thorace sesqui latiora, elongata, dorso minus convexa, profunde striato-punctata, striis (externis brevioribus) ad apicem oblitteratis, 7<sup>ma</sup> ad medium extendente, dein obsoleta, ad apicem breviter exarata; picea, nonnunquam viridienco-micantia, versus basin dilutiora, macula obliqua, descendente, ante apicem obscure testaceæ. Subtus niger, pedibus rufo testaceis.

31. *picipes*. Kirby. F. B. A. IV. (Peryphus). Habitat Nov-Eboraci et ad Lacum Superiorem. Variat pedibus rufo-testaceis.

32. *tetracolum*. Say. Trans. A. P. S. II.

*rupicola*. Kirby. F. B. A. IV. (Peryphus).

*rupestris*. Dej. Sp. Gen. Habitat ubique; sequenti simillimus, sed thorace latitudine plus sesqui brevior, lateribus magis rotundatis, epipleuris nigris distinctus videtur.

33. \* *substrictus*. *Pernitidus*, capite thoraceque viridiancis, hoc cordato, postice modice retracto, lateribus leviter sinuatis, basi punctato, elytris piceis, profunde striato-punctatis, macula minus distincta ad basin, alteraque oblique descendente ante apicem flavo-testaceis; epipleuris, antennarum basi pedibusque rufis. Long. .24. Habitat ad Lacum Superiorem.

Præcedentem valde refert, sed thorace latitudine sesqui brevior, lateribus modice rotundatis, epipleuris brunneo-rufis dignoscendus.



31. \**lucidus*. *Pernitidus*, capite thoraceque viridiens splendidis, hoc latitudine plus sesqui brevior, lateribus rotundatis, postice breviter sinuatis, basi subtiliter punctato; clytris striato-punctatis, interstitiis planis, nigris, macula humerali alteraque obliqua ante apicem flavo-testaceis; antennarum basi, epipleuris pedibusque rufis. Long. .21. Habitat ad Lacum Superiorem.

A præcedentibus duobus thoraco postice minus sinuato, relictoque, elytris planioribus, minus profunde striato-punctatis, interstitiis planis distinctus. Variat clytris rufo-piceis, maculis sicut supra.

35. *postremus*. Say. Trans. A. P. S. II.

*scopulinus*. Kirby. F. B. A. IV. Habitat Novæboraci minus frequens.

36. *bimaculatus*. Kirby. loc. cit. Specimen unicum ad Rocky Mountains inventum.

37. \**perspicuus*. *Depressiusculus*, nigro-virescens, thorace quadrato, postice modice angustato, vix sinuato, angulis posticis subrectis, basi punctato; clytris testaceis, nebula magna pone medium, maculaque subapicali fuscatis, antennarum basi, pedibusque testaceis, abdomine rufo-piceo. Long. .28. Habitat ad Rocky Mountains.

Statura sequentis, thorace latitudine sesqui brevior, minus convexo, angulis posticis subrectis, basi subtiliter punctato, impressionibus basalibus parum profundis, carina externa brevissima fere obsoleta, elytris testaceis, abdomine rufo-piceo distinctus.

39. *transversalis*. Dej. Sp. Gen. Habitat ad Lacum Superiorem sat frequens.

Thorace distinctius marginato, basi impunctato, impressione transversa posteriore, basalibusque profundis, angulis posticis obtusis non rotundatis, carina externa nulla, elytris nigris, vel picis, macula humerali, subapicali obliqua, magnis testaceis,

interstitiis leviter convexis, stria 7<sup>ma</sup> oblitterata, epipleurisque nigris facile dignoscendus.

Variat colore testaceo magis diffuso, basin totam elytrorum occupante, et partem epipleurarum superiorem attingente.

39. *planus*. Hald. Proc. Ac. N. S. I. 303. *Depressus, niger, nitidissimus, cæruleo-micans, thorace quadrato, postice leviter angustato, angulis posticis subrectis, impressionibus basalibus latis, minus distincte bistriatis, rugosis, carina nulla; clytris striatis, striis obsolete punctatis, 5 primis fere integris, externis levioribus, 6<sup>ta</sup> basi distincta, postice valde abbreviata, 7<sup>ma</sup> omnino oblitterata; sutura postice picescente, antennarum basi pedibusque testaceis.* Long. .21. Habitat NovEboraci et ad Lacum Superiorem.

40. \* *fugax*. *Elongatus valde depressus, thorace quadrato, latitudine plus sesqui brevior, postice leviter angustato, angulis posticis rectis, basalibus subrugosis; clytris profunde striato-punctatis, stria 7<sup>ma</sup> pone medium oblitterata; antennarum basi pedibusque rufo-testaceis.* Long. .23. Habitat in Illinois, a Dom. Willcox benevole datus.

Forma fere *O. planati* supra descripti, sed duplo minor, et clytris profunde striato-punctatis, pedibusque rufis valde differt.

*Elongatus valde depressus, niger nitidissimus, cæruleo-micans. Caput* utrinque profunde oblique sulcatum. *Antennæ* fuscæ, basi rufo-testacæ. *Thorax* latitudine plus sesqui brevior, utrinque truncatus, lateribus leviter rotundatis, postice modice retractis, angulis posticis rectis; fere planus, impressionibus transversis profundis, linea longitudinali utrinque abbreviata, basalibus minus profundis, subrugosis, stria interna profunda, externa vix distincta. *Elytra* thorace paulo latiora, elongata, subparallela, planata, profunde striata; striis leviter punctatis, externis levioribus, apicē oblitteratis, 7<sup>ma</sup> ad medium abbreviata, 5<sup>ta</sup> apice exarata. Subtus niger, pedibus rufis.

b. Corpus minus gracile, thorace majore.

LEJA. Meg.=EUDROMUS. Kirby.

41. *niger*. Say. Trans. A. P. S. II.: Dej. Sp. Gen. Habitat ad Lacum Superiorem et in Pennsylvania minus frequens.

42. *nitidus*. Kirby. F. B. A. IV. Habitat ad Rocky Mountains et ad Lacum Superiorem.

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TACHYS. Knoch.

A. Corpus crassiusculum, plerumque convexum, elytris dorso bipunctatis.

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† Thorace angulis posticis rectis.

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§1. Elytris striis sex integris, profundis, thorace postice leviter retracto sinuatoque.

1. *ephippiatus*. Say. Trans. A. P. S. IV.

*mundissimus*. Zim. MSS.

*elegantulus*. Ferté. Rev. Zool. 1841. Habitat in provinciis australibus.

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§2. Elytris 3-vel 4-striatis, thorace postice vix retracto.

2. \* *vivax*. *Piceus*, thorace quadrato, latitudine sesqui brevior, angulis posticis rectis, basi foveolato, impressione transversa posteriore profunda, punctata, punctis 3 majoribus ad medium; elytris margine lato rufo-testaceo, antennis pedibusque testaceis. Long. 10. Habitat ubique usque ad Rocky Mountains.

Sequenti simillimus, sed convexior, et paulo minor. *Piceus*, nitidissimus. *Antennae* ferrugineae, basi testaceae. *Thorax* capite plus sesqui lator, latitudine sesqui brevior, quadratus, basi truncatus, lateribus ante medium valde rotundatis, pone medium rectis; disco modice convexus; linea longitudinali tenuissima, impressione transversa anteriore nulla, posteriore profunda, punctis 3 ad medium majusculis; basalibus profundis, puncto

minuto ad angulum. *Elytra* thoraco sesqui latiora, convexa, stria suturali integra, 3que vel 4 aliis postice oblitteratis, stria 3ia punctis 2 majusculis, marginali medio late interrupta; rufo picea, margine lato rufo-testaceo, ad humerum et ad apicem dilatato. *Pedes* testacei.

3. *tripunctatus*. Say. Trans. A. P. S. IV. Habitat Nov-Eboraci frequens. Subdepressus, elytrisque immaculatis distinctus. Variat rufo-piceus.

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§3. *Elytris* bistriatis, thorace postice vix retracto.

4. *mendax*. Rufo-piceus, thorace latitudine plus sesqui brevior, impressione transversa profunda, medio punctis 3; elytris thorace sesqui latioribus, ad latera pallidioribus; antennis pedibusque testaceis. Long. .09. Habitat Nov-Eboraci et ad Rocky Mountains.

Sequenti paulo angustior et major, thorace elytris sesqui angustiore facile distinguendus.

Rufo-piceus, pernitidus. *Caput* impressionibus minus profundis. *Thorax* capite plus sesqui latior, latitudine plus sesqui brevior, basi truncatus, lateribus antice valde rotundatis, pone medium rectis; disco subconvexus; linea longitudinali tenui, impressione transversa posteriore profunda, punctis 3 majusculis ad medium, basalibus parvis punctoque ad angulum impresso. *Elytra* thorace sesqui latiora, convexa, versus marginem pallidiora, stria suturali profunda integra, 2<sup>nda</sup> utrinque abbreviata, 3ia vix evidente, punctis 2 majusculis, stria marginali late interrupta. *Antennae* pedesque testacei.

5. *xanthopus*. Dej. Sp. Gen. Habitat ubique; corpore concolore, thoraco elytris vix angustiore a præcedente distinctus.

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§4. *Elytris* unistriatis, thoraco postice vix retracto.

6. *incurvus*. Say. Trans. A. P. S. IV. Abundat ubique. Sequenti simillimus sed minus convexus, et thorace lateribus minus rotundato distinctus.

7. *pulchellus*. Ferté. Rev. Zool. 1841. Habitat ubique minus frequens, elytris macula humerali alteraque subapicali distinctus.

8. \**dolosus*. *Elongatus, convexus, rufo-pallidus, thorace planiusculo, quadrato, latitudine vix sesqui brevior, lateribus paulo rotundatis, impressione transversa posteriore profunda, tenuiter punctata, basalibus profundis, puncto majore ad angulum; elytris thorace sesqui latioribus elongato-ellipticis, lævissimis, stria suturali basin vix attingente, marginali late interrupta; distinctius bipunctatis*. Long. .09. Habitat ad Rocky Mountains

Præcedente angustior, et thorace lateribus minus rotundatis facile distinguendus.

9. \**anceps*. *Pallide rufo-piceus, thorace quadrato, convexo, latitudine fere duplo brevior, antice lateribus valde rotundato, postice leviter retracto, angulis posticis leviter obtusis, impressione transversa posteriore profunda, leviter punctata, basalibus minutis; elytris convexis, thorace sesqui latioribus, lævissimis, stria suturali basin non attingente, marginali medio late interrupta; punctis impressis 2 minoribus: antennis pedibusque testaceis*. Long. .08. Habitat cum priore.

*Bembidium granarium* ? Dej. Sp. Gen.

Habitus omnino *T. incurvi*, sed sesqui minor, et colore, thoracisque angulis posticis leviter obtusis facile distinctus.

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‡‡ Thorace postice retracto, angulis obtusis.

10. \**occultus*. *Pallide rufo-piceus, thorace convexo, cordato, latitudine sesqui brevior, lateribus valde rotundato, postice retracto, angulis posticis valde obtusis non rotundatis, basi marginata, impressionibus basalibus fere nullis: elytris convexis, latitudine sesqui longioribus, lævissimis, punctis 2 subtilibus, stria suturali basin vix attingente, marginali late interrupta; antennis*

*capite thoraceque non longioribus, cum pedibus testaceis.* Long. .08. Habitat in Georgia.

Corpore latiore, convexiore, thoracisque forma valde distinctus.

B. Corpus subdepressum, elytris punctis nullis, thoracis angulis posticis subobtusis. *TACHYTA* Kirby.

11. *inornatus*. Say. Trans. A. P. S. II.: Dej. Sp. Gen.

*picipes*. Kirby. F. B. A. IV. Abundat ubique.

12. *flavicaudus*. Say: Dej. loc. cit. Cum priore inventus

C. Corpus gracile; thorace minore, postice retracto, angulis obtusis, elytris ellipticis, elongatis.

13. \**scitulus*. *Flavo-testaceus, capite fusco, elytris striis 2 profundioribus, punctoque impresso, micantibus, fascia transversa pone medium fusca.* Long. .11. Habitat ad Columbiam Pennsylvaniæ.

Species pulcherrima. Flavo-testaceus pernitidus, elytris micantibus. Caput fuscum, fronte nigro. Antennæ corporis dimidium longitudine æquantes, fusæ, basi apiceque pallidæ. Thorax capite sēsqui latior, latitudine fere duplo brevior, basi truncatus, lateribus rotundatis, postice retractis, angulis posticis obtusis, non rotundatis: convexus, margine pone medium reflexo; linea longitudinali profunda, antice abbreviata, impressione transversa posteriore profunda, medio angulata, basalibus rotundatis. Elytra thorace plus sēsqui latiora, elongata, antice non angustata, parum convexa, stria suturali integra, postice longius recurvata, 2<sup>nda</sup> postice abbreviata, reliquis fere obsoletis; puncto majusculo pilifero ad interstitium 4<sup>tem</sup> ante medium, alteraque prope apicem: stria marginali antice valde abbreviata; flavo-testacea, fascia lata integra pone medium fusca. Subtus rufo-piceus, ano pedibusque testaceis.

14. *proximus*. Say. Trans. A. P. S. II. Præcedenti affinis, sed thorace picco, elytris pallidioribus, macula dis-



coidali non fasciiformi dignoscendus : elytra obsolete striata, stria suturali solum profundiore. Habitat ubique minus frequens.

15. \***corruscus**. *Piceus, nitidissimus, cœruleo-micans, thorace latitudine sesqui brevior, postice retracto, basi utrinque obliquo, elytris stria suturali integra, punctoque magno impresso, antennarum basi pedibusque testaceis*. Long. .09. Habitat NovEboraci et ad Rocky Mountains.

Præcedente sesqui minor, piceus, nitidissimus. *Antennæ* corporis dimidium æquant, basi apiceque testaceis. *Thorax* latitudine sesqui brevior, lateribus rotundatus, postice leviter retractus, basi utrinque oblique truncata, medio leviter emarginata, angulis posticis valde obtusis; disco minus convexus, linea longitudinali profunda, antice abbreviata, impressione transversa posteriore valde profunda, medio angulata, basalibus parvis, profundis. *Elytra* thorace sesqui latiora, elongata, antice leviter angustata, dorso subconvexa, stria suturali profunda, basin non attingente, postice longius recurvata, reliquis oblitteratis; puncto magno pilifero ante medium, alteroque prope apicem; stria marginali ad medium, antice abbreviata, punctis 4 ad humerum. *Pedes* pallide testacei.

16. \***sequax**. *Elongatus, piceus, thorace convexo, latitudine fere duplo brevior, impressionibus transversis profundis, linea longitudinali vix distincta, basi utrinque obliqua; elytris testaceis, antice leviter angustatis, convexiusculis, obsolete striatis, stria suturali postice profunda, longius recurvata, punctoque magno impresso, antennis pedibusque testaceis*. Long. .1. Habitat ad Rocky Mountains.

Præcedenti simillimus, sed angustior, et thorace impressione anteriore profunda, linea longitudinali fere nulla, elytrisque testaceis facile dignoscendus.

17. **laevus**. Say. Trans. A. P. S. II.

*troglydites*. Dej. Sp. Gen. Forma omnino T. cor-

rusci, sed quadruplo minor, elytrisque stria suturali solam distincta; disco subtiliter bipunctato. Habitat ubique.

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BLEMUS. Dej.

1. \* *aenescens*. *Elongatus depressus, pallide rufo-piceus, thorace quadrato, angulis posticis leviter obtusis, basi utrinque obliquo, elytris parallelis, planis, apice truncatis, æneo-micantibus, leviter striatis, striis externis oblitteratis*. Long. .09. Specimen unicum in Georgia inventum.

Elongatus, depressus, pallide rufo-piceus, capite fusco. *Antennæ* testaceæ, apice fuscæ, corporis dimidio longiores, articulo 3<sup>io</sup> sequentibus sesqui brevior. *Thorax* quadratus, latitudine sesqui brevior, lateribus leviter rotundatis, postice levissime angustatus, basi utrinque obliquo, angulis posticis obtusis leviter elevatis, non rotundatis; disco convexus; linea longitudinali utrinque paulo abbreviata, impressionibus basalibus vix conspicuis. *Elytra* thorace sesqui latiora, latitudine triplo longiora, plana, fere parallela, antice leviter angustata, apice rotundato-truncata; striis 5 vel 6 modice distinctis, postice vix profundioribus, basin vix attingentibus; stria marginali punctata, late interrupta. Subtus rufo-piceus, pedibus pallide testaceis.

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SPECIES MIHI IGNOTÆ, VEL DUBIÆ.

*Bembidium punctato-striatum*. Say. Trans.

A. P. S. II.

*intersectum*. Germ. Ins. Nov.

*Peryphus sordidus*. Kirby. F. B. A. IV.

*concolor*. Kirby. *ibid*.

*Notaphus nigripes*. Kirby. loc. cit.

*intermedius*. Kirby. *ibid*.

*posticum*. Hald. Proc. Ac. N. S. I. 303.

*Leja semistriata.* Hald. *ibid.*

*Tachys ferrugineus.* Dej. Sp. Gen. (ad A. ‡. §4. per-  
tinet.)

*misellus.* Ferté R. Z. 1841. (ad B. pertinet.)

*pumilus.* Dej. Sp. Gen. (ad C. pertinet.)

*nigriceps.* Dej. *ibid.* (vix hujus generis.)

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NOTE.

In concluding this paper, which has extended far beyond the limits which were originally proposed, the author regrets that some errors and a few omissions have unavoidably occurred. These will be corrected in an Appendix, which will also contain descriptions of the new species received through the kindness of his scientific friends. To Dr. Zimmerman he is indebted for some valuable suggestions respecting the *Dromii* and *Cymindis*, which render necessary the establishment of some new generic groups. The characters of these will be briefly given in the Appendix.

In the preceding paper particular attention has been given to the concordance of Say's and Dejean's species, the names proposed by the former having much the priority. It is hoped that through the extensive relations of exchange existing between the Lyceum and foreign societies, the present essay will be rendered easily accessible, and that by means of the synonyms here presented the naturalists of Europe, and particularly the French, may be induced to pay some regard to Mr. Say's publications, and believe it possible that a species may be described before it reaches their collections. If they will admit the possibility of such a supposition, much confusion may be avoided, and the interests of science greatly advanced. If the preceding Catalogue be successful in removing any of the confusion which has already arisen, and in preventing any future errors, the fullest expectations of the author will have been realized.

DESCRIPTION of a NEW SPECIES OF PROCELLARIA, by GEORGE N.  
LAWRENCE. Read Feb. 18th, 1847.

### PROCELLARIA MERIDIONALIS.

SPECIFIC CHARACTER.—Bill short; upper tail coverts white; above, brownish black; beneath, white; tarsi pale yellow; toes yellow, marked with black at the end for two-thirds their length.

Bill black and stout; sides of the upper mandible, unguis, and point of the lower mandible whitish horn color; a narrow band of the same color crosses the nasal case at its base. Unguis strong, very much curved, and acute. The upper mandible has the nostrils on its ridge covered by a very prominent horny sheath, and separated by a thin septum; a deeply grooved line runs its entire length immediately below the nostrils; between the unguis and nasal case it is deeply indented. The lower mandible has a grooved line running through its centre, on each side.

Forehead white, marked with a few light-brown feathers; occiput and top of the head, including the eyes, black; cheeks, throat, and all the under parts pure white, a few black feathers on the sides near the insertion of the tail; hind part of the neck white, mixed with cinereous; upper part of the back ash, which color extends on the sides of the upper part of the breast; back brownish black; tail graduated, consisting of twelve feathers, the central, one and a half inches longer than the outer, white at the base for one-third their length, remainder brownish black; upper tail coverts pure white; lower, white tipped with light ash, and very long, reaching to the end of the tail.

Primary quills black; secondaries light-brown at the ends, and white at the base; tertials dark-brown; under wing coverts and axillars white.

Tarsi pale yellow; toes and webs yellow at the base for about one-third their length, remainder black; hind toe wanting, but in its place a very acute black spur; tarsi and toes rather slender.

Length 16 inches; alar extent 39 inches; wing, from flexure, 12 inches; tail 5 inches; tarsus 1 1-2 inches; outer toe 2 inches; inner, 1 1-2 inches. Bill along the back to the point 1 1-2 inches; 5-8 inch deep at the base, and nearly the same in breadth; tubular sheath 1-4 inch long.

First primary longest; secondaries broad and rounded. Plate XV.

This new species of Petrel was given me by Dr. C. H. Stilwell, of Brooklyn, L. I., who obtained it in Florida during the winter of last year. From him I received the following communication:

"This bird was found floating, wounded, in the salt lagoon opposite Indian river inlet, on the eastern coast of Florida, two hundred and forty miles south of St. John's river. No one of the settlers could tell the name of it, and I suppose it is an uncommon bird in that region, though I cannot say particularly, not being acquainted there much."

Birds of this genus are usually found in high latitudes, but from the difficulty of obtaining them, as they are strictly sea-birds, it is probable they are more frequent on our coast than is generally supposed. At sea they are attracted around the stern of a vessel by any small floating substance, and at such times are often taken with a line and fish-hook baited with fat.

In lightness of form, great length of wing, and graduated tail, it somewhat resembles the genus *Puffinus*; but the bill is so strongly characteristic of the Fulmars, I have thought proper to class it with them.

NOTE.—This bird was noticed on the cover of Nos. 8 and 9, Vol. IV., of the Annals of the New-York Lyceum, under the specific name of *Brevirostris*; but that name being pre-occupied by another species described in Lesson's Ornithology, the above one is substituted.

*On the distinctive characters of* CYPRÆA RETICULATA *of Martyn, and*  
CYPRÆA HISTRIO *of Meuschen. By* JOHN H. REDFIELD. Read  
June 7th, 1847.

Probably in no genus of mollusks, are the species better known and defined, than in the genus *Cypræa*, for in none are the specific characters more constant and unerring, while the labors of European conchologists within the last twenty-five years have so greatly extended the list of species, that there is perhaps less room here for the discovery of new forms, than in any other family.

While this is true in the main, it is also certain that there are some species of *Cypræa*, which, though long known to naturalists, are yet involved in some uncertainty, and of which it is hard to decide, whether they should be regarded as distinct, or as mere varieties of a common specific type, so doubtfully close are their affinities. It is my aim in this paper to show the distinction between two shells of this genus, which are still confounded by European authors, even in the latest monographs, though the labors of our early and lamented associate, Mr. Barnes, have led most American conchologists to avoid the error. I refer to the *Cypræa reticulata* of Martyn, and the *C. histrio* of Meuschen. Let us examine the historic record of these species, and trace their synonymy.

The earliest figures referrible to either of these species, are those of Bonanni, 1681, Lister, 1688, Rumphius, 1711, Petiver, 1713, and Knorr, 1766. These figures are usually quoted indiscriminately for *C. histrio* and *C. reticulata*, and from circumstances connected with their date, it is probable they all represent the same species; but with the exception of Lister and Knorr, they are so rudely executed, that it is impossible to decide whether they belong to the *histrio* of Meuschen, or the *reticulata* of Martyn. The figures of Lister and Knorr, are tolerable representations of what I view to be the true *C. histrio*.

In 1784, appeared Martyn's Universal Conchology, where we



find a shell figured under the name of *Cypræa reticulata*, differing in many respects from that afterwards known as *C. histrio*. Upper and lower views of the shell are given, and the black spot which characterizes this species is evident, though not conspicuous. Martyn quotes none of the earlier figures, but he must have been acquainted at least with that of Lister; from which I think we may justly infer, that he considered his own *reticulata* to be distinct from Lister's shell. The habitat which Martyn assigns to his shell—Friendly Islands—is worthy of note.

In 1787, Meuschen, in the Museum Geversianum, mentions for the first time *Cypræa histrio*, by that name. I have not had an opportunity to consult that work, and cannot therefore decide whether his shell be identical with the one since known under that name, nor whether authors are correct in assigning it precedence over the *C. arlequina* of Chemnitz, published in the following year. For the present, I must assume that their judgment is correct.

In 1788 appeared the 10th volume of Chemnitz's continuation of Martini's Conchylien-Cabinet, where we find, under the name of *C. arlequina*, two very good figures of what I regard as the true *C. histrio*. In his descriptive text, Chemnitz quotes the figures of Lister, Knorr, and Martyn for his *C. arlequina*. This latter reference seems to have been the first source of the inaccuracy which has since prevailed; and yet some remarks at the close of his description show that the peculiar characteristics of Martyn's shell had not escaped his practised eye, but that he considered it a remarkable variety of his own *C. arlequina*.

Such were the materials which existed at the time when Gmelin commenced, in 1788, the publication of his edition of the *Systema Naturæ* of Linnæus, of which edition it may be doubted, whether it has not been of more hindrance than benefit to the cause of science, so numerous are its blunders, and so unpardonable the carelessness of its compiler. I shall quote all he says in relation to the species before us. On page 3403, we find—

"*Cypræa histrio*. C testâ ovatâ, subturbinatâ, sublivido ocellatâ, subtus planâ albâ, ad latera incrassatâ, atra-fusco maculatâ, lineâ dorsali lividâ, fauce violaceâ.

*Cypræa reticulata* and *Cypræa histrio* distinct.

Chemn. Conch. 10, p. 110, t. 145, f. 1346, 1347.

Lister, Conch. t. 659, f. 3 a.

Knorr, Vergn. 2; t. 16, f. 1.

Martyn, Conch. t. 15.

Habitat in mari Indico."

We may notice in passing, that with his accustomed inconsistency, Gmelin had already quoted this same figure of Lister (659, 3 a.) for his *C. arabica*, var.  $\beta$ .

On page 3420, we have

"*C. reticulata*. C. testâ reticulatâ, margine maculatis virgatis vario.

Rumphius, Mus. t. 39, f. n.

Habitat —————."

Here Chemnitz's unfortunate reference to Martyn's figure is repeated, and subsequent authors have been led to view Martyn's and Chemnitz's shells as identical, an inference which Gmelin's brief description might confirm, since it may apply to both shells, and with the exception of the "*subtus alba*," would perhaps suit the *reticulata* better than the *histrio*. But as if he had not already sufficiently perplexed the subject, he gives us, on p. 3420, a *C. reticulata* of his own, for which he does *not* quote Martyn, but a figure of Rumphius. This he accompanies with a description so brief as to be useless. This figure of Rumphius is ambiguous, as we have seen, but has been quoted by authors, and perhaps rightly, for *C. histrio*. What wonder that subsequent writers, trusting too implicitly to the labors of their predecessors, and perhaps destitute of good and characteristic specimens of the two species, should conclude that the *C. reticulata* could have no separate existence!

Shortly after the appearance of Gmelin's work, the publication of the French *Encyclopedie Methodique* was commenced. Its progress was, however, much delayed, and the plates to the genus *Cypræa* did not appear until the year 1816, while the text of the same bears the date of 1832, sixteen years later. On plate 351, we find a very good figure of the true *C. histrio*; but on referring to the description of that species in the text, we find that it is not applicable to the figure, but is evidently founded on a specimen

of *C. reticulata*, Thus Gmelin's error was again duplicated, and in such a manner as to increase the confusion he had introduced; so that it was not at all strange that Dillwyn, in his excellent and generally accurate Descriptive Catalogue, published in 1817, should follow in the same track.

Lamarck, in the 7th Vol. of his *Animaux sans Vertèbres*, 1822, describes the *C. histrio*, but, unlike his predecessors, he does not quote the figure of Martyn for it. Why this omission? He was acquainted with Martyn's work, for he quotes it frequently elsewhere. Did he doubt the identity of Martyn's shell with the *histrio*? We have no positive evidence on this point, but his description, short as it is, applies very well to the true *histrio*.

In March, 1824, Mr. Gray commenced the publication of his Monograph on the Cypræidæ, in the *Zoological Journal*. In this paper he degrades both *C. histrio* and *reticulata* from the rank of species, and makes them a variety of *C. arabica*. Of this species he enumerates four varieties, viz:

*a. arabica*: The typical form.

*b. intermedia*: A form which I think to be the same as Kiener's pl. 4, f. 3, and to which I shall again refer.

*c. histrio*: In this he includes both Martyn's and Chemnitz's shells.

*d. depressa*: This seems to be founded on the figure in the Enc. Meth., which in my view is a *histrio*.

It is not a little strange that Mr. Gray should have been led to unite two species so widely different as the typical *C. arabica* and the *C. histrio*; and with only one exception, as I believe, later authors have rejected his views.

Shortly after Mr. Gray's Monograph was commenced, and before it was known in this country, our associate, Mr. Barnes, read before this Society his description of the *C. maculata*, which will be found in the *Annals of the Lyceum*, Vol. I., p. 132. Mr. Barnes was probably not acquainted with the work of Martyn, which at that time was hardly known in this country. In a later number of

the Zoological Journal Mr. Gray pronounced Mr. Barnes' species to be one of his varieties of *C. arabica*, whereupon Mr. Barnes published a second notice of the *C. maculata* in the same volume of the Annals, in which he shows most conclusively that his species cannot be united with the *arabica*. The object of this second notice being simply to reply to Mr. Gray's opinion, it appears not to have occurred to Mr. Barnes that there was the least occasion to point out the differences between his species and the true *histrio*, with which he must have been acquainted. That Mr. Barnes' shell is identical with that of Martyn's, I think there can be no doubt,\* and while we regret that the former must lose the name, from want of priority, we can claim for him the merit of independently pointing out the distinctive characters of a shell, which no author, since the days of Martyn, has distinctly recognized.

A Monograph of this genus appeared in 1830, in Sowerby's Conchological Illustrations. In this we find two figures applicable to the species under discussion. Fig. 80, called in his index *C. histrio*, seems to represent the *C. reticulata*, although the ventral spot of that species is but faintly indicated. Fig. 166, which he calls *C. reticulata*, is perhaps a dwarf variety of that species, and will be again referred to. In a Catalogue subjoined to this Monograph, he refers both these figures to *C. arabica*, thus following the example of Gray. But he remarks of the *C. arabica*, "This seems a variable species; the *C. histrio* and *C. reticulata* may possibly prove distinct. I have never seen the *C. maculata* of Barnes, but if permitted to form my judgment from his figure, I should say it was perfectly distinct." Sowerby has here come nearer the truth than any other monographer.

\* Mr. Barnes in his notice states that the *C. maculata* is never reticulated, and it may be thought that this statement is inconsistent with the idea that his shell is identical with *C. reticulata*. But it must be remembered that Mr. Barnes was contrasting his shell with the *arabica*, which is eminently reticulated. The groundwork of both *reticulata* and *histrio*, may in one sense be considered as a reticulation, embracing the ocellated spots. Martyn's name was not very appropriate, and were it not for the propriety of a rigid adherence to the law of priority, we should prefer the name applied by Mr. Barnes.

Wood's figure in *Index Testaceologicus*, pl. 16, f. 4, which he calls *C. histrio*, represents only the back of the shell, and it is difficult to decide to which species it should be referred; but in form it is nearer to the *C. reticulata* than to *histrio*.

Kiener's splendidly illustrated Monograph, which appeared in 1843, gives a beautiful figure of the true *reticulata*, but he terms it *histrio*, while he figures the true *histrio* under the title of variety of *C. arabica*.

Deshayes, in his late edition of Lamarck's *Animaux sans Vertèbres*, also commits the same error, by adding Martyn's figure to Lamarck's quotations, and by asserting the identity of the two species in a note.

Reeve, in his *Conchologia Iconica*, the latest authority on this genus, figures the true *reticulata*, and under its proper name, but gives *C. histrio* as a synonym, showing that he also considered them identical.

Having thus shown the origin of the confusion which has existed in regard to these species, and having traced the continuance of the error, I propose the following corrected synonymy and detailed description for each, preparatory to pointing out their distinctive characters.

CYPRÆA RETICULATA. *Martyn*. Pl. XVI. F. 1.

*C. testâ* ovatâ, super convexâ, castaneâ, albido ocellatâ, lineâ dorsali subcentrali, subsinuosâ; lateribus albido-lividis, aut plumbeis, incrassatis, nigro maculatis: basi subplanâ, albido-lividâ, labio sinistro maculâ nigrâ magnâ notato; rimâ subcurvâ, dentibus castaneis, extûs subproductis.

SYNONOMY.

*Cypræa reticulata*. *Martyn*, 1784. *Universal Conchology*, pl. 15.

*C. arlequina*, var. *Chemnitz*, 1788. *Conch. Cab. Vol. X.*, p. 112.

*C. histrio*, pars. *Gmelin*, 1789. 15th edition of *Systema Naturæ*, p. 3193.

? *C. reticulata*. do. do. do.  
p. 3420.

*C. histrio*, pars. *Dillwyn*, 1817. *Descriptive Catalogue*, Vol. I., p. 439, No. 4.

- C. arabica*, var. *histrio*, pars. Gray, March, 1824. Monog. in Zoological Journal, Vol. I., p. 77.
- C. maculata*. Barnes, April, 1824. Annals of Lyc. Nat. Hist., Vol. I., pp. 132, 385, pl. 9, f. 1.
- C. arabica*, var. Sowerby, 1830. Conchological Illustrations, f. 80.
- C. histrio*. Deshayes, 1832. Enc. Méth. Vers., t. 3, p. 817, No. 8. (fig. excl.)
- C. histrio*. Kiener, 1843. Iconographie des Coquilles Vivantes, Gen. Cypræa, p. 104, tab. 18, f. 1.
- C. histrio*, pars. Deshayes, 1844. Ed. Lamarck's Anim. sans Vertèbres, Vol. 10, p. 496.
- C. reticulata*. Reeve, (syn. excl.) 1846. Conchologia Iconica, Genus Cypræa, pl. 1, f. 3.

DESCRIPTION.—Shell ovate, very convex, and sometimes subgibbous above, flattened beneath; sides strongly thickened; spire apparent. The color above is a deep chesnut-brown, everywhere sprinkled with round whitish or yellowish spots, usually isolated, but sometimes confluent. Beside these spots, the groundwork of the coloring is broken in upon by occasional minuter white spots and longitudinal lines, irregularly diffused. Dorsal line nearly central, somewhat irregular, and undulating. The sides are whitish, passing into bluish gray, and thickly covered with intensely brown or black spots, which are often transversely extended. A large spot of this character always appears upon each side of the anterior and posterior emarginations. Color beneath whitish, slightly clouded with brown, with a dark-brown or black spot on the centre of the left lip. This spot may be more or less obscured by a subsequent deposit of enamel, but is always apparent. The aperture is slightly curved, the columellar lip flattened within, and deeply hollowed toward the lower or anterior end. Teeth usually about 25 in number on each side, but varying from 20 to 30; well defined, chesnut-brown, which color extends outwardly beyond the real extent of the teeth, particularly near the centre of the left margin, where they seem to extend nearly to the dark spot mentioned above.

Length 2.9 inches. Breadth 2.0. Height 1.6.

HABITAT.—I am not in possession of sufficient facts to determine the geographical limits of this species, but so far as I know it is



confined to the tropical regions of the Pacific Ocean. Great numbers of them are brought from the Polynesian Islands, by American whaling vessels. Martyn's specimens were from the Friendly Islands.

CYPRÆA HISTRIO. *Meuschen.* Pl. XVI. Fig. 2.

*C. testâ ovatâ, ad extremitates subattenuatâ, super convexâ, interdum turgidâ, castaneâ, ocellis albidis rotundatis aut polygonis; maculâ nigrâ juxtâ spiram: lineâ dorsali rectâ, propriore laterem sinistrum; lateribus albido-fulvis, nigro sparsim maculatis; basi subconvexâ, albido-fulvâ aut violascente; rimâ subrectâ, dentibus castaneis, extûs non productis.*

SYNONOMY.\*

Lister, 1688. *Hist. Conch.*, t. 659, f. 3½ a.

Knorr, 1766. *Vergnugen*, 2, t. 16, f. 1.

*Cypræa histrio.* Meuschen, 1787. *Museum Gœversonianum*, p. 404.

*C. arlequina.* Chemnitz, 1788. *Conch. Cab.* 10, p. 110, tab. 145, f. 1346, 1347.

*C. histrio*, pars. Gmelin, 1789. 13th ed. of *Systema Naturæ*, p. 3403.

*C. histrio.* Brug., 1816. *Enc. Méthodique*, pl. 351, f. 1, a. b.

*C. histrio*, pars. Dillwyn, 1817. *Descriptive Catalogue*, Vol. I., p. 439, No. 4.

*C. histrio.* Lamarck, 1822. *Animaux sans Vertèbres*, Vol. VII, p. 379.

*C. arabica*, var. *histrio*, pars. Gray, 1824. *Monog. in Zoological Journal*, Vol. I., p. 77.

? *C. arabica*, var. *depressa* . . . do. . . . do.  
Vol. I., p. 77.

? *C. histrio.* Quoy & Gaimard, 1833. *Voyage de l'Astrolabe*, t. 3, p. 30, pl. 47, f. 10, 11, with animal.

*C. arabica*, var. Kiener, 1843. *Iconographie des Coquilles Vivantes*, Genus *Cypræa*, p. 106, pl. 17, f. 2.

\* The figures of Bonauni, Rumphius, Petiver, and Wood, are so ambiguous, that I have deemed it best to omit all reference to them. The figure in the *Voyage of the Astrolabe*, I also quote with some doubt, since it represents the shell nearly covered by the folds of the mantle. The small portion of the back of the shell which is visible, is not sufficient to enable me to refer it with certainty to the *histrio*. In this connection, I am happy to acknowledge my obligations to Dr. John C. Jay, of Rye, for the means which his extensive conchological library has afforded, of verifying the most of the synonymy given in this paper.

*C. histrio*, pars. Deshayes, 1844. Edit. Lamarck's Anim. sans Vert.; Vol. X., p. 496.

DESCRIPTION.—Shell ovate, slightly attenuated at the extremities, very convex above, slightly so beneath; sides moderately thickened; spire apparent. The color above is chesnut-brown, and there are transverse bands perceptible where the color is deeper than in the intermediate spaces. Back covered with whitish spots, which are round or polygonal, and occasionally confluent. The chesnut ground-work is also interrupted, or mottled, to a greater degree than in the former species, by irregular, smaller white spots or lines. A black stain usually apparent to the left of, and just behind the spire. Dorsal line nearer the left margin, almost straight. Sides whitish, sometimes passing into flesh-color, or with a slight tinge of peach-blossom, sprinkled with black spots, which are sometimes transversely extended. These spots also appear on each side of the posterior and anterior emarginations, as in the former species, but are not to be confounded with the blotch or stain just mentioned as existing near the spire. Color beneath, the same as the sides, with no trace of the labial spot found in the preceding species. Aperture less curved than in the *C. reticulata*; columellar lip same as in that. Teeth chesnut-brown, well defined, but not extending upon the ventral face; usually about 28 on each side, but varying from 25 to 32.

Length, 2.6 inches. Breadth, 1.5. Height, 1.3.

HABITAT. Gmelin and other early writers assign the Indian Ocean as the locality of this species. The specimens brought to this country usually come from that ocean, and I am not aware that it occurs eastward of Australia.

The preceding descriptions are founded, of course, on the full-sized adult shell. In the young state, the shells present fewer differences, and are difficult to distinguish from the young of the *C. arabica*. I have found, however, that the peculiar ventral spot of the *C. reticulata* becomes apparent at a very early period, long before the exterior coat of enamel is perfected.

That the two shells described above present striking resemblances, in the general character of their marking, cannot be denied;

but that they also present differences equally striking and constant, must, I think, be acknowledged. These differences extend to the general form, to the shape of the aperture, as well as to the marking. In form the *C. reticulata* is much broader, more thickened at the sides, less attenuated at the extremities, and less convex beneath than the *C. histrio*. In some specimens of the former, the sides are so much thickened as to give the shell very much the form of the *C. Mauritiæ* or *C. caput-serpentis*. This excessive thickening never takes place in the *histrio*, which in form is nearer the *C. mappa* than to the species just named. The aperture of the *histrio* is less curved than in the *reticulata*, while in the latter the teeth extend farther on the ventral face of the shell than in the former. I have not found the number of teeth to be a very reliable character in this genus, adult specimens of small size having fewer teeth than larger specimens of the same degree of maturity. I do not, therefore, use this as a distinctive character in the present case; though in the specimens I have examined, I have found the number of teeth in the *histrio* to average higher than in the *reticulata*.

In the markings of the two species we find the following constant distinctions. The whitish spots on the back of the *C. reticulata* are usually more distant and isolated, and less inclined to be polygonal than is the *C. histrio*, and the chestnut groundwork which separates them is less interrupted or mottled with minuter white spots or lines. The dorsal line is nearly central, and more or less irregular and undulating in the *reticulata*, while it is straight, and much nearer the left side of the shell when placed back upwards, in the *histrio*. In the latter, there is usually a black stain at the left of the spire, and though I have seen specimens of the *histrio* in which this was not apparent, I have never seen a *reticulata* which shewed it. On the other hand, the ventral blotch of the *reticulata*, which in that is always more or less visible, (unless that be an exception which I shall soon mention,) is never seen in the *C. histrio*. In the latter, the dark spots on the sides are usually less frequent and smaller than in the former, and the under side of the shell is of a lighter color, more inclined to flesh-color, or peach-bloom. It may also be remarked, that in the *histrio*, the dark transverse bands which are found in the earlier stage of growth, are

perceptible in the adult shell beneath the richly painted enamel which is last deposited. In the *reticulata*, this peculiarity is seldom seen.

On reviewing these distinctive characters, I think we may justly conclude, that the *Cypræa vitellus* and *melanostoma*, the *C. lurida* and *pulchra*, the *C. cervus* and *exanthema*, the *C. talpa* and *crusta*, or the *C. mus* and *leucostoma*, are not more distinct each from the other, than are the two species we have been considering, and that if authors will unite the latter, it will be difficult to find justifiable ground for separating the former.

The fact that the two species in question occupy distinct geographical fields, seems to confirm the views which I have here expressed. It will also account for the acquaintance of the earlier European naturalists with the one species, and their silence in regard to the other. The distant commerce of Europe, during the seventeenth and earlier part of the eighteenth century, was mainly with the East Indies, by way of the cape of Good Hope; hence the *C. histrio* of the Indian Ocean seems to have been well known as early as 1688, and perhaps 1681. On the other hand, the commerce and whale fisheries of the Pacific, which have now become so extended and important, had then hardly an existence. Accordingly, with a single exception, the *C. reticulata* appears to have been almost unknown until the present century. Martyn, who almost alone of the writers of the last century knew the shell, received it as has been mentioned, from the Friendly Islands. The date of his work (1784) renders it not an unlikely supposition, that his shell was brought home by the third expedition of Cook, who touched at those islands in 1777.\*

\* The following quotation from the close of Chemnitz's description of his *C. arlequina*, not only seems to confirm these views, but shows how accurately he had discriminated between the shells in question. After stating that the *C. arlequina* inhabits the seas of the East Indies, particularly the shores of St. Maurice, (Mauritius?) he says—"Among the South Sea shells which have been communicated to us from Cook's voyages, there is also an excellent *harlequin*. On the upper surface I notice more regular rings, and a darker enclosure of the eyes and spots. On the side margins are several blackish brown drops and spots, with which even a great portion of the under surface is tigered, as it were. Each lip has only 22 teeth, which are of a blackish brown color. This shell was found on the shore of Otaheite."

I have purposely left to the close of this paper some remarks on a shell which seems to have attracted the attention of nearly all the writers on this genus, and which they have generally considered as a variety of *C. arabica*. The shell I refer to is that figured by Kiener, in his pl. 4, fig. 3, by this title, and is represented on our Pl. xvi. fig. 3. The following references seem to indicate the same.

*C. arabica* var  $\beta$ . Cmelin, 13th edit. Syst. Naturæ, p. 3398.

Enc. Méthod. pl. 352, f. 5.

*C. arabica* var. Lamarck. Hist. Anim sans Vertèbres. Vol. 7, p. 378.

do. var. *intermedia*. Gray. Monog. Cypræidae, Zool. Jour. I. p. 77.

do. var. Sowerby. Conchological Illustrations, f. 166.

I have at times been strongly inclined to view this as a distinct species, but its character is so ambiguous, that I am not prepared to maintain it as such. It approaches, however, much nearer to the *C. reticulata*, than to the *C. arabica*, and if it be retained as a variety, it must be transferred to the former species. Indeed, it seems to differ from the typical *C. reticulata*, only in being of a much smaller size, more thickened at the sides, and destitute of the ventral blotch of that species. Notwithstanding this latter characteristic, it can never be confounded with the *C. histrio*. The teeth are fewer in number than in the typical *reticulata*, but this, as I have remarked, may be owing to its diminished size. More accurate knowledge of the animal, of its locality and habits, will no doubt lead to a just determination of its claims to the rank of a species. Should it prove specifically distinct, the name proposed by Gray for it as a variety would be extremely appropriate, viz., *Cypræa intermedia*.

DESCRIPTION of a NEW SPECIES of WOODPECKER, by WILLIAM L.  
JONES, M. D., Read 13th March, 1847.

*Picus Le Contei* ♂ Supra nigro et albo variegatus, parte anteriore colli, lateribus, et pectore pallide-cinereo-fuscis; fascia lata rubra occipitali, maculaque magna sordide-alba in regione supra scapulari: mento et ventre subalbis. Pedibus tridactylis, rostro compresso. Hab. in Georgia. Lon.  $5\frac{1}{10}$  poll.—Plate XVIII.

DESCRIPTION.—Bill at base as high as it is broad, compressed toward the point, slender and terminating rather abruptly. Ridge of upper mandible slightly curved. Length from gape  $1\frac{1}{2}$  of an inch—nostrils concealed by bristly feathers. Tarsus feathered at its upper part—compressed, shorter than the third toe with its claw length  $\frac{1}{10}$  of an inch. First toe wanting—fourth longest, versatile. Fourth quill-feather longest, third shorter than the fifth and longer than the sixth; second shorter than the eighth and longer than the ninth. Feathers of the back and under parts loose and blended. Ten feathers in the tail which are rather narrow and somewhat pointed. Length  $5\frac{2}{3}$  inches, alar extent 11 inches, wing from flexure  $3\frac{7}{8}$  inches.

COLOR.—Crown black, nasal feathers dirty white; a broad white line passes from the base of the upper mandible over the eye and terminates in a broad, red occipital band; beneath this a black line passing through the eye, meeting on the occiput and extending down the neck; beneath this another white line which expands into a broad patch upon the supra-scapular region—beneath this a narrow line of black extending to the scapula. Flexure of wing, scapulars and upper-tail coverts black. First and secondary wing coverts black with spots near their tips; quills black, barred with white. Two middle-tail feathers black, the next pair with a little white on their outer webs—the third pair with a large patch of white on its outer web, extending into the inner near the tip. Two outer pairs dirty white with two or three black bars. Lower tail coverts white, spotted with black—throat and vent dirty white;



fore-part of neck, breast, sides and under wing coverts pale-cinereous-brown.

From Swainson's description of his *P. meridionalis*, it must resemble this bird very closely, differing chiefly in the number of toes and relative length of quills. This differs from the *P. pubescens* in the color of its under parts—in being smaller and having a less conical bill. In their wonderful fondness for numerous genera and sub-genera, many modern Ornithologists would no doubt place this species in some one of the subdivisions of this class of birds. But until some more natural and scientific basis of classification is discovered, I prefer to place it in the genus *Picus* of Linnaeus.—The specimen from which this description is taken was shot in Liberty County, Georgia, on the 11th of April, 1847. Its habits appeared to be similar to those of the "*pubescens*." There is no rudiment of the first toe, but this may possibly be the result of an arrest of development. Farther specimens will be necessary to establish the species perfectly. I have named it "*Lecontei*," in honor of my friend Joseph Le Conte, M. D., of Georgia—a young naturalist of great zeal and ability, and who is particularly devoted to the science of Ornithology. For the beautiful drawing which accompanys this description, I am indebted to my friend Mr. Geo. N. Lawrence, well known to Naturalists for his valuable contributions to the science.

DESCRIPTIONS of NEW SPECIES of *BULLIA* and *MARGINELLA*, with  
Notes upon G. B. SOWERBY, Jr's. *Monograph of the latter*  
*genus*, by JOHN H. REDFIELD. Read May 22d, 1848.

1. *BULLIA plicata*. Plate XVII., Fig. 1.

Testâ elongato-turritâ, albido-lutescente : anfractibus septem planatis, supernè crenulato plicatis, infernè callosis ; columellâ excavatâ, subsinuatâ, callosâ ; labro tenui ; aperturâ levi, castaneâ, anticè latè emarginatâ.

DESCRIPTION.—Shell elongate, turreted, yellowish white, tinged on the back with brownish yellow. Whorls seven, flattened, crenately plicated beneath the sutures. The upper whorls are covered with a callosity extending from their base over about three fourths of their height, leaving only the sutural plications exposed. This callosity follows the turns of the shell, until it reaches the commencement of the last whorl, where it loses itself upon the columellar lip. Columella excavated, slightly twisted, white.—Three or four prominent striæ emerge from beneath the columellar callosity in a line with the termination of the suture, and continue to the basal or anterior portion of the right lip. Below these striæ is an area covered with fine incremental striæ concentric to the basal notch, which is broad, and rather deep. Right lip thin. Aperture smooth, colored with chesnut-brown toward its upper portion.

Length 3.1 inches (79 millimetres.) Breadth 1.7 inches (43 millimetres.) Spiral divergence 30°.

HABITAT.—Not precisely known, but from the fact that it was found in company with *Monoceros lugubre* Sow. and other shells inhabiting the East Pacific, it is probable that it was brought from California or Central America.

REMARKS.—This is the largest species of *Bullia* yet known, though not so ponderous as *B. gradata* (Desh.) Reeve. It cannot be confounded with any of the species described in Reeve's *Monograph of that genus*.

2. *MARGINELLA Chrysomelina.* Plate XVII., Fig. 2.

Testâ ovali, nitidâ, albâ ; maculis subquadratis fulvis sexfasciatâ ; fasciis intermediis niveis ; spirâ retusâ, oblecta ; aperturâ angustâ, anticè valdè emarginatâ : labro intus crenulato, extus albo, varicoso ; columellâ 6 aut 7 plicatâ, plicis superioribus obscuris ; plicâ penultimâ tumidâ, bifidâ, exteriùs productâ.

DESCRIPTION.—Shell oval, polished, whitish, crossed by six rows of quadrangular or roundish yellowish spots ; between each of these rows is a narrow band of pure white. Spire retuse, concealed by a copious deposit of callus : Right lip toothed within, broadly reflected externally, white. Columella with six or seven folds.—The last but one, is much broader and stouter than the rest, bifid, and extends outwardly nearly to the basal notch which is very deep.

Length 0.23 inches (6 millimetres.) Breadth 0.14 inches ( $3\frac{1}{2}$  millimetres).

HABITAT.—West Indies ?

REMARKS.—An elegant little shell belonging to the group of which *M. tessellata*, *multilineata*, *interrupta* and *obesa* form a part, and closely allied to the first. It differs from that in its much more diminutive size, more delicate style of coloring, and the wider separation of the tessellated bands. The right lip is more strongly reflected and devoid of the chestnut color exhibited in the *M. tessellata*. The specimens on which this description is founded were kindly furnished me by Professor C. B. Adams, of Amherst College, Massachusetts.

3. *MARGINELLA Philippinarum.* Plate XVII., Fig. 3.

*Marginella arena*, Sow. jr., (not Kiener) Thesaurus Conchyliorum, Vol. i. p. 391, Plate 76, Fig. 130.

Testâ elongato-ovatâ, cylindraceâ, nitidâ, subdiaphanâ, flavidâ, rufo pallidè trifasciatâ ; spirâ brevi, obtusâ ; anfractibus quatuor, vix perspicuis : labro albo, prope medium constricto, extus subvaricoso, aurantio subincto : plicis quatuor, duabus anterioribus obliquis, in unam convergentibus.

DESCRIPTION.—Shell oblong-ovate, cylindric, polished, somewhat diaphanous, yellowish white, crossed by three bands of a darker color. Spire short, with about four whorls. Suture incon-

spicuous. Right lip smooth, white, constricted about midway, externally slightly reflected, and faintly tinged with orange. Columellar folds four, all oblique, the lower two the most so, and converging into one at their anterior termination.

Length 0.6 inches (15 millimetres). Breadth 0.28 inches (7 millimetres).

HABITAT.—Philippine Islands.

REMARKS.—This species is very closely related to the *M. arena* Valenci., and may be regarded as the eastern analogue of that species. It however attains a larger size, its spire is shorter and more obtuse, and its right lip is more inflected, and more thickened externally. G. B. Sowerby, jr., in his recent monograph has well discriminated between the two species; but is, I think, decidedly wrong in applying the name *arena* to the eastern species, and in describing the West India species as new under the title of *M. varia*. By reference to Kiener's original figure and description of *M. arena*, (so named in MSS. by Valenciennes,) it will be seen to better represent the shell called *M. varia* by Sowerby than the one under discussion, while the habitat is there explicitly stated to be "the seas of the West Indies." If this be so, Sowerby's *M. varia* must reassume the name of *M. arena*, justifying us in applying a new title to the species above described.

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The recent monograph of the genus *Marginella* by G. B. Sowerby, jr., in the *Thesaurus Conchyliorum*, is a most valuable contribution to our knowledge of this genus. The number of species known to Lamarek of the genera *Marginella* and *Volvaria*, (now generally united) was 29, which in the edition by Deshayes are increased to 44. Kiener's monograph, including the supplement, enumerates 56 species. The *Thesaurus*, while it excludes several species now referred to the genus *Erato*, describes and figures 108 species, of which 18 now appear for the first time. In general, the figures are characteristic, and the species well defined. It may not be amiss, however, to point out what seem to be a few errors in the determinations and synonymy of the work referred to.

*Species No. 37. M. carulescens*, Lam. Fig. 155, referred to under this title, as a dwarf variety, differs so much from the typical form, that I am constrained to view it as a distinct species, and have little doubt of its identity with *M. Storeria* of Couthouy, figured and described in Bost. Jour. Nat. Hist., Vol. I. It is the same shell which in Prof. Adams' catalogue is denominated *M. unicolor*, Lister.—This latter name is given by Kiener as a synonyme of *M. curta*, Sow.; but by reference to Lister's work it will be found that he has nowhere so named any species of *Marginella*.

The established rules of nomenclature require Gmelin's name *prunum* to be preferred to Lamark's *carulescens*. Mr. Sowerby merely gives the former as a synonyme.

No. 45. *M. elegans*, Gmel. I cannot agree with Mr. Sowerby in the propriety of uniting *M. elegans*, Gmel., and *M. undulata*, Chemn. The differences in size and marking, conjoined with the fact that one has six and the other but five plaits, seem to justify previous authors in separating them.

No. 51. *M. conoidalis*, Kiener. If this be really identical with *M. apicina*, Menke—as I have supposed, and as Mr. Sowerby states—the latter name should take precedence, having been applied in 1830. Sowerby's figures 97, 98, and 100 seem to represent *M. flavida* nobis, which is certainly closely allied to *M. apicina*, and may prove identical, though I am still of opinion that it is distinct.

No. 58. *M. triticea*, Lam. Sowerby's shell cannot be the *M. triticea* of Kiener if the figures of both authors are faithful.

No. 80. *M. guttata*, Swainson. The name *guttata* had been applied by Dillwyn in 1817 to the shell afterwards known as *M. longivaricosa*, Lam. Swainson's name will not therefore stand, and we must fall back on Kiener's title *M. maculosa*.

No. 85. *M. similis*, Sow. This is identical with *M. obesa* nobis, described and figured in this Journal in March, 1846, while Mr. Sowerby's first description was not published until the close of the same year.

No. 88\*. *M. obesa*, Sow. This name being pre-occupied as above, this species must take another name. I would propose *M. pyruata*.

No. 90. *M. longivaricosa*, Lam. Dillwyn's name, *M. guttata*, takes precedence, as already mentioned.

No. 92. *M. carnea*, Storer. Sowerby should have made his fig. 103, the type of this species and not the variety. (See Storer's figure and description in Bost. Jour. Nat. Hist., Vol. 1.) I doubt whether the figures he has quoted as typical really belong to this species. They seem more nearly related to *M. guttata* Dillwyn, but may prove distinct from either.

No. 97. *M. persicula*, (Lin.) Lam. Mr. Sowerby judiciously reunites to this species the *M. avellana*, Lam., which differs only in the smaller size and greater number of its spots, an unsafe character in this genus.

No. 98. *M. lineata*, Lam. Named *cingulata* by Dillwyn in 1817, who should be followed.



OBSERVATIONS ON THE QUANTITY OF RAIN AT DIFFERENT HEIGHTS.

*Read July, 27th, 1846, by O. W. MORRIS.*

Observations on the quantity of rain that falls at different heights have been made in France and England; the results of which have been published at various times, and the Regents of the University of this State have recommended that similar observations should be made by the literary institutions under their care: such may have been made, but they have not been published, or have not come under our observation, although it is very desirable that they should be made known, for they may serve still farther to unravel many of the mysterious laws of the Creator, and to make his wisdom and goodness more conspicuous, in making use of means to bring about a desirable result.

A little more than a year since observations were commenced at the institution for the deaf and dumb, and two gages fixed at different heights—one about five feet from the ground and the other on the top of the institution, about eighty feet above the first; and the quantity of rain and melted snow that has fallen has been carefully noted, and the result has been, that much more has been collected in the lower gage, than in the upper; thus corresponding in some degree with the results obtained in Europe. The gages used were the conical gages, first made by Simeon De Witt, Esq., former Surveyer General, and recommended by the Regents of the University.

The reasons of this difference are not so easily accounted for, as in the warm seasons, the temperature is greater near the surface of the ground, than at 30, 40, or more feet above it. But may it not be the case, that this in itself, is a very good cause, as the greatest difference occurs in the warmest season of the year? The heat at the surface converts the falling water into vapor, which rising is condensed again, and united with the drops of rain from

a colder region as they fall: thus increasing the quantity near the surface.

It may be observed that the difference is much increased by a violent wind, but whether this is owing to the situations of the gages or the different powers of condensation, has not been satisfactorily determined.

Observers in France and England conclude that the difference in quantity, decreases in warm regions, and increases in cold. In 1834, there was much less difference in Paris, than at York, England. So there may be less difference in daily than in nightly periods.

The conclusion arrived at by Mr. Harris is, that "the result depended on two conditions: viz. The vertical measure of the tract of air, intervening between the two stations, and the temperature of the season of the year. The former determining the ratio of the differences of the quantity of rain at different elevations above the ground; and the latter influencing the amount of these differences—but the latter depends some upon the season of the year."

The quantities of rain, and difference in quantity, with the ratios of the quantities at three different stations, for three years, in different seasons, in York, England: viz. on York Minster,  $212\frac{1}{8}$  feet from the ground—on the museum  $43\frac{3}{4}$  feet, and on the ground from the same gentlemen are as follows:

	Minster.	Museum.	Ground.	Difference.	Ratios.
3 Summer Months,	13.473	17.430	20.306	6.833-2.876	66.35-85.83
3 Winter "	14.138	12.170	17.320	3.182-5.150	49.94-70.26
5 Warmer "	20.042	26.126	30.916	10.874-4.790	64.82-84.50
5 Colder "	14.130	19.789	26.879	12.749-7.090	52.60-73.62
7 Warmer "	24.834	32.320	38.551	13.717-6.231	64.42-83.84
7 Colder "	18.820	25.100	33.999	15.179-8.899	53.58-73.82

The total results at the same place for 1833 and 1834, were:

14.963	19.852	25.706	10.743-5.854	58.20-77.21
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At Bransby, 12 miles north, on a level with the Minster, it was 24.000 inches on the ground.

At York, from Feb. 1st. 1834, to Jan. 31st 1835, the result of the observations was:

*Quantity of Rain at Different Heights.*

	Minster.	Museum.	Ground.	Difference.	
Feb.	.480	.670	1.040	.560	.370
March	.456	.710	1.034	.578	.324
April	.193	.326	.558	.365	.232
May	1.029	1.282	1.475	.446	.193
June	1.080	1.726	1.862	.782	.136
July	1.951	2.885	3.565	1.614	.680
Aug.	.893	1.300	1.760	.867	.460
Oct.	1.127	1.526	1.815	.688	.289
1835. Jan.	1.085	1.710	2.830	1.745	1.120
Ratios.	52.03	76.13	Total difference	7.645	3.804.

At Bolton-Cravan, the results for six months of 1834 and '35, by Mr. Littledale, were

81 6-12 feet above ground.	34 2-12 feet and 6 1-2 feet.	Difference.	
16.53	18.81	19.41	2.88 .60

These results will be seen to correspond with those obtained *here* in two gages for sixteen months from February 1845, to July 15th 1846.

	Eighty-five feet above ground.	Five feet.	Difference.	
February	1.460	2.082	.622	
March	1.825	2.920	1.095	
April	.682	1.242	.560	
May	1.560	2.158	.598	
June	3.020	4.225	1.205	
July (to 15th)	.750	.890	.140	
September	1.900	2.690	.790	
October	3.420	4.930	1.510	
November	2.235	2.948	.713	
December	1.890	3.411	1.521	
1846. January	2.875	4.496	1.621	
February	8.860	8.940	.680	
March	2.130	3.420	1.290	
April	1.520	2.625	1.105	
May	7.950	9.750	1.800	
June	.970	1.465	.495	
July (15th)	1.640	2.040	.400	
Total	44.687	60.232	15.545	

The difference for the first 11 1-2 months was	-	-	-	10.455
" " last " " "				11.325
" " the whole 16 " "				15.545

Which is almost twice as much as at York Minster, which is more than  $2\frac{1}{2}$  times higher, and almost 3 times greater than at the Museum, which is about half as high. This difference may be owing in some degree, to the different construction of the gages, and some to the difference of temperature of the two places, but our observations are not sufficiently perfect, to warrant us in saying that we have arrived at a correct conclusion. It will, however, show that by proper attention, much on this subject may yet be gleaned from the hidden arcana of Nature, and we hope to be able at some future time, to present more enlarged and correct results.

## OBSERVATIONS,

*Made in New-York on the State of the Weather, before and after the Appearance of Auroras and Haloes—on the Quantity of Rain at Different Elevations, with other Meteorological Results: By O. W. Morris, of the New-York Institution for the Instruction of the Deaf and Dumb.*

## WEATHER, BEFORE AND AFTER AURORAS AND HALOES.

1847.		Auroras & Haloes	Wind	Preceding.	Succeeding.
Jan.	23	Lunar Halo.	S. W.	Fifth day, rain.	Third day, rain.
Feb.	24	do	W.	Second " snow.	Same night, snow.
March	19	Aurora.	W.	Day before, snow and rain	Next three days rain
"	27	Lunar Halo.	N. W.	Same day, snow.	Third day, snow.
"	28	do. & Aurora.	N. W.	Day before, snow.	Second day, snow.
April.	7	Aurora.	W.	do. rain and snow.	Next do. rain.
"	5	Solar Halo.	N. W.	Third day, do.	do. do. rain.
"	19	do	S. E.	Day before, rain.	do. do. rain.
May.	26	Lunar Halo.	W.	Same day, do.	Fourth do. do.
"	27	do	S. E.	Day before, do.	Third day, snow.
June.	28	do	W.	do. do.	Next do. do.
Aug.	4	Aurora.	W.	Third day, do.	do. do.
"	21	Lunar Halo.	W.	Ninth do. do.	Seventh do.
Sept.	16	Aurora.	S. E.	Third do. do.	Third do.
"	23	Lunar Halo.	S. W.	Fourth do. do.	Next do.
"	29	Aurora.	W.	Day before do.	Day after, do.
Nov.	1	do	W.	Eighth day do.	Sixth day, do.
"	14	do	W.	Same do.	Fifth do. do.
"	"	Lunar Halo.	W.	do do.	do. do.
"	18	do	S. E.	Fourth do. do.	Day after do.
"	20	do	N. E.	Day before, do.	Second day do.
"	26	Aurora.	N. W.	Second day, do.	do. snow.
Dec.	20	Lunar Halo.	N.	do. snow.	do do.

Auroras, 9. Solar Haloes, 2. Lunar Haloes, 13.

As a clouded state of the atmosphere often prevents the observations of Auroras at many localities where they would otherwise be visible, and as clouded or stormy weather makes a daily progress from place to place, no specific inductions are attempted from these observations.

# ANNUAL ABSTRACT.

1847.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Results.
<i>Winds.</i> North.	1	9	7	3	13	3	1	6	2	3	2	2	10 days N. wind.
Northeast.	4		1		1		6	2	7	6	2	3	73 " N. E. "
East.	1	1	3	4	7	9	9	9	7	1	2	5	64 " E. " "
Southeast.	1			2	1	1	1	2		3	1	5	64 " S. E. " "
South.	9	3	1	10	3	1	7	5	2	5	5	9	64 " S. " "
Southwest.	6	9	9	3	2	10	3	5	8	6	6	3	74 " S. W. " "
West.	8	5	8	6	3	4	2	1	3	5	9	6	63 " W. " "
Northwest.													63 " N. W. " "
Total of each month.	31	28	31	30	31	30	31	30	30	31	30	31	
Prevailing wind.	S. W.	W.	W.	S. W.	N. E.	W.	S. E.	S. E.	W.	W.	N. W.	S. W.	West.
<i>Weather.</i> Clear.	13	9	10	16	12	15	15	16	14	19	11	7	1601 days.
Cloudy.	13	11	12	8	14	7	10	10	6	9	14	14	132 "
Rain.	3	2	4	4	4	7	5	4	8	3	4	6	161 " on which rain fell.
Snow.	1	4	3	1								2	13 " " snow "
Rain and snow.	1	1	1	1							1	3	3 " " rain & snow "
Quantity of } Upper.	4.94	6.535	3.26	.78	1.00	4.695			6.22	3.39	2.73	3.74	Total of rain and
rain in inches } Lower.	5.365	7.655	5.22	.93	1.39	5.95			7.51	3.88	3.28	4.94	snow for 10 months

Winds, Northerly 146 days. Easterly, 145. Southerly, 137. Westerly, 202 days.



# RESULTS OF THERMOMETRICAL OBSERVATIONS AT NEW-YORK,

FOR THE YEAR 1848.

1847.	Sunrise.	9. A. M.	3. P. M.	9. P. M.	Mean.	Maximum.	Minimum.	Range.	Greatest Force of Wind.
Jan.	37.065	28.71	33.535	29.645	29.718	56° on the 1st.	11° on the 22d.	45°	On the 7th S.W. 21h W., 29th S.E. strong
Feb.	26.57	28.86	34.21	30.21	30.187	48 " 3d. 9th & 15th.	12 " 24th.	36°	31 S. E. Very high.
March.	30	34.26	39.16	30.03	33.42	56 " 25th.	20 " 13th, 14th, & 16th.	36	23d. 26th N. E. Very high.
April.	40.5	48.2	54.233	45.966	46.816	79 " 22d.	23 " 1st.	56	27th N. W. 30th S. W. strong.
May.	50.71	59.29	63.67	56.35	57.419	82 " 22th.	40 " 1st.	42	13th N. E.
June.	61.1	69.5	74.13	65.83	65.404	88 " 28th.	49 " 15th.	39	19th and 20th S.E. Moderate.
July.	69.8	75.77	78.64	71.87	74.07	88 " 5th and 7th.	60 " 30th.	23	20th S. W. Very high.
Aug.	65.9	74.45	77 " 77.	67.03	71.22	34 " 31st.	56 " 26th.	23	5th and 7th N. E. Strong.
Sept.	58.7	62.7	67.08	61.1	62.558	83 " 4th.	47 " 16th.	36	19th & 25th N. E. Very high.
Oct.	46.29	50.29	54.612	49.871	50.782	65 " 19th.	29 " 27th.	36	13th S. E.
Nov.	43.333	45.966	50.533	45.133	46.241	68 " 4th and 9th	12 " 30th.	56	24th S. E. Strong.
Dec.	35.38	37.225	41.1	37.032	37.895	62 " 14th.	13 " 27th.	49	2d S. E. 16th N. E. very high

Annual mean 50.4775. Highest degree 88°. Lowest 11°. Range 77°. Greatest monthly, 56. Least monthly range, 28.

The Thermometer is one of Pike's, and hangs where there is a circulation of air around it, and no reflection of any amount to affect it.

The two Rain Gages have been observed during ten and a half months of the year. The lower gage occupies a position, about two hundred feet distant from any building, and about five feet from the ground: the upper one is on the top of the building, about eighty feet above the other. The quantity of water has been carefully measured in both, and recorded: that in the lower, is 46.92 inches, and that in the upper is 38.44 inches, showing a difference of 8.48 inches, or an average of a little more than .8 per month.

In making an estimate of the true quantity, however, the water from melted snow should be rejected, because with the present instruments the difference in the quantity of snow cannot be accurately measured, owing to the force of the wind, &c.: this leaves the quantity of *rain* for that time in the lower gage, 41.675 inches, and in the upper 32.185 inches, showing a difference of 9.49 inches, an average of .903, per month.

There are many circumstances to be taken into consideration in coming to a true result; such as violence of the wind, time of the day when it rains, density of the atmosphere at the commencement as foggy, misty and cool, or hot and dry, or after a long interval of dry weather, &c. A long continued and careful series of observations may be necessary in order to furnish a solution of this difference in quantity, which has already engaged the attention of many scientific men, who have not been able, as yet, to agree upon any general principles to account for it.

# RESULT OF BAROMETRICAL OBSERVATIONS.

1847.	Sunrise.	P. A.	M.	9. P.	M.	3. P.	M.	Mean.	Maximum.	Minimum.	Range.	Remarks.
Jan.	29.958	29.955	29.928	29.943	29.952	30.45	on the 28th.	29.07	on the 30th.	1.38	Storms on the 29th and 30th.	
Feb.	29.88	29.982	29.844	29.853	29.869	30.33	" 16th & 24th.	29.	3d	1.33	do 3d and 27th.	
March.	29.396	29.918	29.867	29.91	29.777	30.41	" 6th.	28.70	27th	1.71	do 22d and 27th.	
April.	29.944	29.947	29.865	29.91	29.921	30.45	" 19th.	29.40	27th	1.05	Very little high wind.	
May.	29.935	29.373	29.347	29.385	29.501	30.23	" 5th.	29.49	8th	.74	do	
June	29.92	29.94	29.921	29.924	29.926	30.24	" 18th.	29.43	14th	.81	do	
July.	29.942	30.017	29.988	30.004	29.987	30.16	" 17th.	29.57	26th	.59	High winds 21st and 22d.	
August.	30.028	30.043	30.053	30.014	30.029	30.48	" 30th.	29.62	" 6th	.86	do 7th.	
Sept.	29.939	29.955	29.939	29.941	29.943	30.20	" 11th.	29.65	28th	.55	Storms 19th and 25th.	
Oct.	30.028	30.054	29.986	30.04	30.026	30.63	" 28th.	29.35	" 9th	1.28	do 8th, 9th, and 12th.	
Nov.	30.038	30.054	30.32	30.54	30.238	30.55	" 30th.	29.59	24th	.96	do 24th.	
Dec.	30.026	30.133	30.001	30.012	30.018	30.48	" 8th.	29.45	" 24th	1.63	do 2d and 16th.	

Yearly mean 29.939. Highest degree 30.63. Lowest, 28.70. Range, 1.93. Mean range, 1.024. Height of Barometer, 150 feet above tide. The Barometer was also made by Pike.

NOTE TO THE FOLLOWING ARTICLE.

The following paragraphs were removed from the body of the article at page 511, as not necessary to its design, they are here prefixed as a convenience to those who may not have seen the more elaborate article on Beats, in "*Smith's Harmonics*."

When two sounds are heard nearly harmonizing, there are heard at the same time irregularities of sounds, or BEATS; the frequency of which depends on the nature of the sounds. When a true Do (32 vibrations per second,) is accompanied by a sound of 31 or 33 vibrations, one beat per second is heard. Sounds of 31 and 33 vibrations would produce 2 beats; 256 and 259 would produce 3 beats, &c., as in the following diagram. Where the sounds are nearly 5ths, 3rds, or any concords, their vibrations per second must be multiplied by the ratio of the interval, so as to produce nearly equal numbers, and then the difference is the number of beats per second. Thus the beats of the imperfect fifth between La<sup>1</sup> 27 and Mi<sup>2</sup> 40 are found to be one per second; by subtracting 80 (twice 40) from 81 (3 times 27.) In the same way, the beats of the major third, recommended in the lamented Prof. Fisher's Table for Tuning (*Sill. Journal*, Vol. 1, p. 195,) between Fan<sup>5</sup> (325.68 vibrations,) and Lan<sup>5</sup> (428.92 vibrations per second,) will be found by multiplying these numbers by 4 and 5 respectively, to be 37.28 per second.

In the following figure the points represent the vibrations of imperfect unison, as of Sol<sup>3</sup>; the commas only, of imperfect fifths, as Do, and Sol<sup>4</sup>. The beats, which are the same in both cases, are denoted by *b*

[illegible]

These beats furnish us with the most ready way, though the least satisfactory way, of ascertaining the number of vibrations in any pitch. It is easy to tune two tubes so that they shall differ in pitch precisely comma. It has long been known that their vibrations then are 80:81, but it is more difficult to ascertain the vibrations of either. Let the sounds be  $Si^4$  and  $Si^4$ . If they beat 3 times per second, we know that  $Si^4$  vibrates 240, and  $Si^4$  243 times per second. Again, by means of beats the most perfect tuning can be executed, by the aid of an unpractised ear. Even the most perfect interval, the octave, can be tuned more accurately by making use of their beats with an intermediate sound, than in any other way. This process is, however, too slow for the practical tuner, unless it be in tuning sets of tuning forks.

ON MUSICAL INTONATION AND TEMPERAMENT. By I. F. HOLTON.

Read Oct. 12th—19th, and Nov. 2nd, 1846.

The mathematical relations of musical sounds have received very little attention from scientific writers, for the last quarter of a century. Almost every branch of science has been greatly simplified during this period; this still repels the beginner with a formidable array of difficulties. It is the object of this paper to present the *first elements only* of the Mathematics of Music, in a form so simple as to be understood, on a careful perusal, by any one familiar with the main principles of common arithmetic.

Sound is produced by vibrations of air. The sound produced by more frequent vibrations is called MORE ACUTE or HIGHER—that by less frequent vibrations, GRAVER or LOWER. This difference is a difference in PITCH. The difference in the pitch of two sounds when estimated, measured or calculated, is called an INTERVAL.

When drops of water fall on a board at a uniform rate of 16 per second, a uniform sound is heard, about as grave as the human ear is capable of appreciating. This sound is called by the English and Germans, *c* (*great twice marked C*), and by the Italians, French, Spanish and Portuguese, *Do*<sup>1</sup>, (first *Do*.) Any thing will produce a sound of this pitch which will make 16 uniform impressions on the air in a second, as comb teeth striking against the finger-nail—a vibrating string striking against the air—or air itself vibrating in a tube; sounds from different sources, as the vibration of a wire and of a silk cord, for instance, though the same in pitch, will differ in *quality*. The French call this difference in quality, *Timbre*. 16 pulsations per second produce *Do*<sup>1</sup>; \* 32 produce a higher sound, named *Do*<sup>2</sup>; 64 make *Do*<sup>3</sup>; 128 make *Do*<sup>4</sup>; 256 make *Do*<sup>5</sup>, or MIDDLE *Do*; 512 make *Do*<sup>6</sup>; 1,024 make *Do*<sup>7</sup>; 2,048 make *Do*<sup>8</sup>; 4,096 make *Do*<sup>9</sup>; 8,192 make *Do*<sup>10</sup>; and 16,384 uniform pulsations make *Do*<sup>11</sup>. A

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\* I use the Italian names because they are much more convenient; but I must caution the reader against confounding *Do*, *Re*, *Mi*, &c., as the Italians use them, with the same terms as used in American singing schools.

sound more acute than this is utterly inaudible to human ears. Each of these numbers is just double the preceding.

Let us go backwards a moment, halving the numbers. I said 128 pulsations a second make  $\text{Do}^4$ ; 64,  $\text{Do}^3$ ; 32,  $\text{Do}^2$ ; and 16,  $\text{Do}^1$ . If 8 vibrations per second make a sound, it must be named  $\text{Do}^0$ ; 4,  $\text{Do}^{-1}$ ; 2,  $\text{Do}^{-2}$  and 1 vibration a second,  $\text{Do}^{-3}$ . From this imaginary point let us ascend again. 1 vibration should produce  $\text{Do}^{-3}$ ; 2,  $\text{Do}^{-2}$ ; and 4,  $\text{Do}^{-1}$ . Now, 3 vibrations should produce a sound between  $\text{Do}^{-2}$  and  $\text{Do}^{-1}$ ; let its name be  $\text{Sol}^{-2}$ . Double this, and 6 pulsations should make  $\text{Sol}^{-1}$ ; and 12,  $\text{Sol}^0$ ; 24 make  $\text{Sol}^1$ ; 48,  $\text{Sol}^2$ ; 96,  $\text{Sol}^3$ ; 192,  $\text{Sol}^4$ , &c. Thus between each Do and the one above there is a Sol. The interval between Sol and the Do below is 2 : 3; that between Sol and Do above is 3 : 4. Thus  $\text{Do}^4$  is 128;  $\text{Sol}^4$  is 192. Now,  $128 : 192 :: 2 : 3$ . And  $192 : 256$  (Middle Do,)  $:: 3 : 4$ .

Again, 5 pulsations a second should form a theoretical sound between  $\text{Do}^{-1}$  and  $\text{Sol}^{-1}$ . The name is  $\text{Mi}^{-1}$ . Doubling this, we have  $\text{Mi}^0$ , 10;  $\text{Mi}^1$ , 20;  $\text{Mi}^2$ , 40;  $\text{Mi}^3$ , 80;  $\text{Mi}^4$ , 160;  $\text{Mi}^5$ , 320; &c. So between each Do and the Sol above is a Mi, which is to the Do as 5 : 4, and to the Sol as 5 : 6. Thus  $\text{Do}^4$  is to  $\text{Mi}^4$  as  $128 : 160 :: 4 : 5$ , and  $\text{Mi}^4$  to  $\text{Sol}^4$  as  $160 : 192 :: 5 : 6$ . Observe, now, from these data how to calculate the interval from Do to Sol. It cannot be done by addition. We must compound the ratios 4 : 5 and 5 : 6; multiplying, we have 20 : 30, and dividing by 10, 2 : 3, as in the margin.

$$\begin{array}{rcl} & 4 & : \quad 5 \\ & 5 & : \quad 6 \\ 10 \int & \frac{20}{2} & : \quad \frac{30}{3} \end{array}$$

Thus far we see 1 pulsation per second should yield  $\text{Do}^{-3}$ ; 2,  $\text{Do}^{-2}$ ; 3,  $\text{Sol}^{-2}$ ; 4,  $\text{Do}^{-1}$ ; 5,  $\text{Mi}^{-1}$ ; 6,  $\text{Sol}^{-1}$ ; 8,  $\text{Do}^0$ . A new pitch, named  $\text{Re}^0$ , should arise from 9 vibrations;  $\text{Re}^1$ , 18;  $\text{Re}^2$ , 36; &c. 15 vibrations would be  $\text{Si}^0$ ; 30,  $\text{Si}^1$ ; &c. No other even vibrations per second yield a pitch to which we need now give a name. Between these pitches there are two large intervals. One is between Mi and Sol, of 5 : 6. We must have an intermediate pitch, and will call its name Fa. We will take it as much above  $\text{Do}^1$  as  $\text{Do}^2$  is above  $\text{Sol}^1$ , that is 3 : 4. Now  $3 : 4 :: 16 : 21\frac{1}{3}$ , which is our  $\text{Fa}^1$ . Here is a disagreeable fraction which follows us through every Fa, as  $\text{Fa}^2$ ,  $42\frac{2}{3}$ ;  $\text{Fa}^3$ ,  $85\frac{1}{3}$ ;  $\text{Fa}^4$ ,  $170\frac{2}{3}$ ; &c. We find the interval from  $\text{Mi}^1$  to  $\text{Fa}^1$  to be  $20 : 21\frac{1}{3}$ , which is 60 : 64, which is 15 : 16, the same as from Si to Do. And the interval from  $\text{Fa}^1$  to  $\text{Sol}^1$  is  $21\frac{1}{3} : 24 :: 64 : 72 :: 8 : 9$ ,



the same as from Do to Re. Compounding these, we have the interval Mi to Sol, 5 : 6, as before.

The interval between Sol and Si is still larger, 4 : 5, the same as from Do to Mi. We will put in a sound La, the same as the Re between Do and Mi, making Sol : La :: 8 : 9, and La : Si :: 9 : 10. La<sup>1</sup>, then, makes  $26\frac{2}{3}$  vibrations a second.

We have now established 7 pitches between Do<sup>1</sup> and Do<sup>2</sup>. They are found in capitals in the table of Diatonic Scales. The ratios of vibrations, and the intervals between them, are placed at the bottom. We see there only 3 kinds of intervals, 8 : 9 and 9 : 10, both called a Tone, (which we distinguish by calling one the greater Tone, and the other the lesser Tone,) and 15 : 16, called in barbarous mixture of Greek and Latin, *Semitone*, but more properly *HEMITONE*. The interval from any of these pitches to the next above or below is called a SECOND; to the next but one, a THIRD, &c.; and to the eighth above or below, an OCTAVE. Thus from Fa<sup>1</sup> to Fa<sup>2</sup> is an octave; from Si<sup>1</sup> to Re<sup>2</sup> is a third, &c. Every pitch resembles its octaves more than it does any other pitch. Thus Fa<sup>2</sup> can be readily told from Mi<sup>2</sup> or Sol<sup>2</sup>, but is in one sense *identical* with Fa<sup>1</sup> and Fa<sup>1</sup>. Hence they all bear the name of Fa. So of all the rest.

Any series of 8 pitches whatever, having between them the seven intervals, *TONE, Tone, Hemitone, TONE, Tone, TONE, Hemitone*, is called a *DIATONIC SCALE*. Any Diatonic Scale beginning and ending with Do, as that in the table, is called the *DIATONIC SCALE OF DO*; and music composed of these pitches is said to be in the *KEY OF DO*. The first and last note of any Diatonic scale is called *Tonic*, the second *SUPERTONIC*, &c. We give the names at the head of the table. Four more notes are occasionally wanted in each octave. These are a grave second, a flat seventh, a sharp fourth, and a sharp fifth. They are accordingly added to the table.

Furnished with these sounds, we can produce the air of any unmodulated piece of music we choose. Suppose, now, Archdale were written in the Key of Do, of which we have given the Diatonic scale. It begins on the tonic. The highest note is an octave above, and the lowest a fourth below. If the first sound were Do<sup>2</sup>, the highest would be Do<sup>3</sup>; much higher than the female voice can well reach. But if the first note be taken on Do<sup>1</sup>, the lowest would be Sol<sup>0</sup>; too low for a lady's voice. Some other key, as of Sol, must be used.

If Sol be the first note of a key, the second must be La. Now, the interval between the first and second of the scale must be a *TONE*. That between Sol and La is only a *Tone*. If Sol, 24, La must be, not  $26\frac{2}{3}$ , but 27. Now,  $26\frac{2}{3} : 27 :: 80 : 81$ . The interval of 80 : 81 is called *COMMA*. From La to Si is a *Tone*, as it should be between the second and third; from Si to Do, a *Hemitone*; Do to Re, a *TONE*; Re to Mi a *Tone*; but from Mi to Fa only a *Hemitone*. This will not do—we must have a *TONE* there. Mi<sup>2</sup> has 40 vibrations, 8 : 9 :: 40 : 45. The new sound is to Sol<sup>2</sup> as 45 : 48 :: 15 : 16; so this interval is, as it should be, a *Hemitone*. The intervals now, from Sol<sup>1</sup> to Sol<sup>2</sup>, are *TONE*, *Tone*, *Hemitone*, *TONE*, *Tone*, *TONE*, *Hemitone*; consequently it is a true Diatonic scale—the scale of the Key of Sol. This key has no Fa in it; its place is therefore left vacant for the new pitch. Occupying the same place, we will give it a name by adding an *n* to Fa and call it Fan. Fa is to Fan as  $42\frac{2}{3} : 45 :: 128 : 135$ . The interval is less than a *Hemitone*; it is called *MAJOR LIMMA*. This rendering a pitch limma higher is called *SHARPING* it.


The same transposition which we have performed on the key of Do, we may repeat on that of Sol. Taking its 5th (Re) for tonic, raising its 2nd (Mi) comma, and sharpening its 4th (Do) into Don, we have the Key of Re. This may be repeated again and again. It is obvious this process may be reversed. The Key of Re may be transposed to that of Sol, by making its 7th (Don) limma lower, (which is called *FLATTING* it,) and making its 2nd comma lower. By the same process the key of Sol can be transposed to that of Do, and that again to the key of Fa; in each case reducing the 2nd comma, and the 7th to its proper place, and the 4th becomes the Tonic. Beginning with Fa, the first two intervals are *TONE* and *Tone*, but instead of Si we use a pitch which is to La as 15 : 16. This is written in the same place with Si. We will call it Sir. Now, La : Sir :: 15 : 16 ::  $26\frac{2}{3} : 28\frac{4}{3}$ , and Sir : Do :: 9 : 10 ::  $28\frac{4}{3} : 32$ .





This process has no assignable limits. A few keys only are needed to write pieces in, but music often passes from one key to another, in the midst of a strain, for the effect of the change. This change is called *MODULATION*.

In the table at the close, will be found all the pitches of 18 keys, arranged in their order, with the number of their pulsations in the lowest octave. The acute and grave accents imply sounds

comma sharper and flatter respectively than the names indicate. These, then, are the Elements of Music. Pure music at concert pitch can contain no other but by modulating beyond the 18 keys, and no other sounds are ever used but as substitutes for some one of these.

Here is the proper place, (though it is almost superfluous,) to mention the other modes of representing these sounds. One which is very common in this country, England and Germany, is by letters. The diatonic scale of Do is indicated by the letters C D E F G A B C. Do<sup>1</sup> is written  $\underline{C}$ ; Do<sup>2</sup>,  $\underline{D}$ ; Do<sup>3</sup>, c; Do<sup>4</sup>, c; Do<sup>5</sup>,  $\bar{c}$ ; Do<sup>6</sup>,  $\bar{\bar{c}}$ ; and Do<sup>7</sup>,  $\bar{\bar{\bar{c}}}$ . These names are inconvenient to pronounce, inconvenient to the printer, and cannot be applied in singing the notes. These inconveniences are not counterbalanced by a single advantage peculiar to this system, and its entire abandonment would greatly benefit the study of music.

The musician, who needs only a few octaves, writes them on staves of generally five lines each. He marks the place of Sol<sup>6</sup> with , placing La<sup>7</sup> next above it and Fa<sup>5</sup> next below it. Fa<sup>6</sup> is placed on the same line or space with Fa, and preceded by a SHARP (#) either on the beginning of the staff or in the same measure with the note, and so with all sharps. The flatted pitches are written in the same way, with a FLAT (b) preceding them. Where a note is in danger of being read as sharpened or flatted when it is not, it is preceded by a NATURAL (♮). Acute pitches are marked with the acute accent (´), and grave pitches with the grave accent (`), either at the beginning of the staff or after each note. Where a note might be supposed to be acute or grave, but should be neither, it is followed by a small circle (°). These marks are omitted in music, intended only to be executed.

Fa<sup>4</sup> is denoted by  and Do<sup>4</sup> (middle Do) by  or ;  is often very improperly used to denote Sol<sup>4</sup> as well as Sol<sup>6</sup>—leaving the performer to guess which.

We here give the pitches from Do<sup>4</sup> to Do<sup>5</sup>, written with the Fa and Do Clefs:—

$\text{Sor}^{\sharp}, 179\frac{5}{7}\frac{8}{2}\frac{1}{0}$	$\text{Do}^{\flat}, 256$
$\text{Fàn}^{\sharp}, 177\frac{1}{2}$	$\text{Sín}^{\sharp}, 253\frac{1}{2}$
$\text{Sòr}^{\sharp}, 177\frac{3}{8}\frac{8}{9}\frac{8}{7}$	$\text{Dò}^{\flat}, 252\frac{8}{9}\frac{1}{1}$
$\text{Mín}^{\sharp}, 172\frac{1}{0}\frac{8}{2}\frac{8}{4}$	$\text{Dò}^{\flat}, 249\frac{4}{0}\frac{7}{5}\frac{1}{1}$
$\text{Mín}^{\sharp}, 170\frac{5}{0}\frac{5}{4}$	$\text{Sì}^{\sharp}, 243$
$\text{Fà}^{\sharp}, 170\frac{3}{2}$	$\text{Làn}^{\sharp}, 240\frac{5}{2}\frac{5}{0}\frac{5}{4}$
$\text{Mín}^{\sharp}, 168\frac{3}{4}$	$\text{Sì}^{\sharp}, 240$
$\text{Fà}^{\sharp}, 168\frac{1}{2}\frac{3}{4}\frac{6}{8}$	$\text{Dor}^{\sharp}, 239\frac{1}{2}\frac{2}{5}\frac{5}{7}$
$\text{Fà}^{\sharp}, 166\frac{8}{1}\frac{2}{0}\frac{2}{5}\frac{3}{5}$	$\text{Sì}^{\sharp}, 237\frac{1}{2}\frac{1}{7}$
$\text{Mì}^{\sharp}, 162$	$\text{Lán}^{\sharp}, 230\frac{1}{2}\frac{8}{5}\frac{8}{0}$
$\text{Rènn}^{\sharp}, 160\frac{1}{10}\frac{8}{2}\frac{5}{8}$	$\text{Lan}^{\sharp}, 227\frac{1}{1}\frac{3}{0}$
$\text{Mì}^{\sharp}, 160$	$\text{Sìr}^{\sharp}, 227\frac{5}{0}$
$\text{Fà}^{\sharp}, 159\frac{8}{0}\frac{2}{7}\frac{7}{1}$	$\text{Làn}^{\sharp}, 225$
$\text{Mì}^{\sharp}, 158\frac{2}{7}$	$\text{Sìr}^{\sharp}, 224\frac{5}{7}\frac{4}{1}\frac{1}{9}$
$\text{Rén}^{\sharp}, 153\frac{2}{1}\frac{0}{8}$	$\text{Sìr}^{\sharp}, 221\frac{5}{2}\frac{7}{0}\frac{3}{1}\frac{1}{0}$
$\text{Rén}^{\sharp}, 151\frac{1}{2}$	$\text{Lá}^{\sharp}, 216$
$\text{Mìr}^{\sharp}, 151\frac{1}{2}\frac{8}{7}$	$\text{Sìrr}^{\sharp}, 213\frac{1}{0}\frac{8}{5}\frac{2}{5}\frac{1}{1}$
$\text{Rèn}^{\sharp}, 150$	$\text{Sònn}^{\sharp}, 213\frac{1}{2}\frac{2}{5}\frac{2}{0}$
$\text{Mìr}^{\sharp}, 149\frac{1}{2}\frac{8}{1}\frac{7}{7}$	$\text{La}^{\sharp}, 213\frac{1}{3}$
$\text{Donn}^{\sharp}, 144\frac{3}{2}\frac{3}{0}\frac{3}{4}$	$\text{Là}^{\sharp}, 210\frac{1}{2}\frac{7}{4}\frac{0}{9}$
$\text{Re}^{\sharp}, 144$	$\text{Són}^{\sharp}, 205\frac{1}{3}\frac{1}{2}$
$\text{Mìrr}^{\sharp}, 142\frac{3}{0}\frac{0}{0}\frac{5}{4}\frac{0}{0}$	$\text{Son}^{\sharp}, 202\frac{1}{2}$
$\text{Dònn}^{\sharp}, 142\frac{4}{1}\frac{9}{2}\frac{8}{8}$	$\text{Lar}^{\sharp}, 202\frac{2}{0}\frac{2}{1}$
$\text{Rè}^{\sharp}, 142\frac{2}{0}$	$\text{Sòn}^{\sharp}, 200$
$\text{Rè}^{\sharp}, 140\frac{3}{2}\frac{1}{2}\frac{8}{9}$	$\text{Là}^{\sharp}, 199\frac{1}{0}\frac{8}{5}\frac{8}{1}\frac{1}{1}$
$\text{Dón}^{\sharp}, 136\frac{1}{1}\frac{0}{0}$	$\text{Fann}^{\sharp}, 192\frac{1}{5}\frac{1}{1}\frac{1}{2}$
$\text{Don}^{\sharp}, 135$	$\text{Sol}^{\sharp}, 192$
$\text{Rer}^{\sharp}, 134\frac{2}{3}\frac{8}{4}\frac{8}{3}$	$\text{Fànn}^{\sharp}, 189\frac{2}{3}\frac{1}{2}$
$\text{Dòn}^{\sharp}, 133\frac{1}{3}$	$\text{Sòl}^{\sharp}, 189\frac{1}{2}\frac{1}{7}$
$\text{Rèr}^{\sharp}, 133\frac{3}{1}\frac{8}{0}\frac{0}{0}\frac{1}{3}$	$\text{Sòl}^{\sharp}, 187\frac{8}{2}\frac{3}{1}\frac{1}{7}$
$\text{Sín}^{\sharp}, 128\frac{3}{2}\frac{3}{0}$	$\text{Fán}^{\sharp}, 182\frac{1}{4}$
$\text{Do}^{\sharp}, 128$	$\text{Fan}^{\sharp}, 180$

The reasons for the precise intervals of the Diatonic scale can be best understood by examining the effect of hearing two or more pitches at the same time. These, when agreeable to each other, form HARMONY. When Do, Mi and Sol, for instance, are heard at once, their vibrations being as 4, 5, and 6, must often coincide thus :—

Sol . . . . .  
Mi . . . . .  
Do . . . . .

Here every other vibration of *Do* corresponds with one of *Sol*, and every fourth pulsation of *Do* corresponds with one both of *Sol* and of *Mi*. *Do* is found to harmonize with *Mi* 4 : 5, with *Fa* 3 : 4, with *Sol* 2 : 3, and with *La* 3 : 5. *Rè* harmonizes with *Fa*  $3\frac{5}{8} : 4\frac{2}{3} :: 320 : 384 :: 5 : 6$ , with *Fàn* 4 : 5, with *La*  $3\frac{5}{8} : 5\frac{3}{4} :: 2 : 3$ , and with *Sir* 5 : 8. *Re* harmonizes with *Sol* 3 : 4, and with *Si* 3 : 5. *Mi* harmonizes with *Sol* 5 : 6, with *La* 3 : 4, with *Si* 2 : 3, with *Sòn* 4 : 5, and with *Do* 5 : 8. *Fa* harmonizes with *La* 4 : 5, with *Sir* 3 : 4, with *Do* 2 : 3, and with *Rè* 3 : 5. *Fàn* harmonizes with *La* 5 : 6, and with *Rè* 5 : 8. *Sol* harmonizes with *Si* 4 : 5, with *Do* 3 : 4, with *Re* 2 : 3, and with *Mi* 3 : 5. *Sòn* harmonizes with *Si* 5 : 6, and with *Mi* 5 : 8. *La* harmonizes with *Do* 5 : 6, with *Rè* 3 : 4, with *Mi* 2 : 3, with *Fàn* 3 : 5, and with *Fa* 5 : 8. *Sir* harmonizes with *Fa* 2 : 3, and with *Rè* 4 : 5. *Si* harmonizes with *Re* 5 : 6, with *Mi* 3 : 4, with *Sol* 5 : 8, and with *Sòn* 3 : 5.

It is obvious that the corresponding degrees of every other key harmonize with each other in the same way as those of Do. From this we see that the precise intervals of the Diatonic scale are not *arbitrary*, but exactly such as will secure the greatest amount of harmony.

We see here only six ratios of vibration which produce harmony : 2 : 3 called a FIFTH (Vth) ; 3 : 4 a FOURTH (IVth) ; 3 : 5 a MAJOR SIXTH (VIth) ; 5 : 8 a MINOR SIXTH (6th) ; 4 : 5 a MAJOR THIRD (IIIrd) ; and 5 : 6 a MINOR THIRD (3d). We need go no farther into the subject of harmony—it constitutes a department of science comparatively well cultivated.

In a composition one single train of sounds must be such as to be of itself agreeable. This train is called the **AIR**, and its agreeable quality is **MELODY**. The melody of pieces of a certain cast often requires the Sharp 4th and 5th. The harmony of these same pieces often contains minor thirds and sixths, where others would have major thirds and sixths. Hence they are said to be in the **MINOR MODE**, and other pieces are said to be in the **MAJOR MODE**. The **Diatonic**

Scale is the same for both, though much mystery has been thrown on this matter, and needless labor imposed on the student, by the so-called **MINOR SCALE**.

A few physical facts must now be stated before proceeding to the *practical part* of this subject.

**FIRST.**—When a musical sound is produced near a string of a musical instrument, if the sound harmonizes with the one the string will produce, it causes the string to vibrate. Thus  $\text{Do}^3$ ,  $\text{Sol}^4$ , or  $\text{Mi}^4$  will produce vibrations in the  $\text{Do}^4$  string of a Piano Forte.

**SECOND.**—When two strings, or two tubes, almost in harmony, are near each other, they may influence each other's vibrations and harmonize completely.

**THIRD.**—When a string vibrates as a whole, and produces its note, parts of the same string vibrate by themselves, and produce higher pitches of sound. Thus, a string sounding  $\text{Do}^4$ , may also produce  $\text{Do}^5$ ,  $\text{Sol}^5$ ,  $\text{Do}^6$ ,  $\text{Mi}^6$ , or  $\text{Sol}^6$ , or several or all of these, and perhaps more. These secondary sounds are called **HARMONICS**. Several musical theories have been based on this fact—an unsafe foundation, as some harmonics have no musical relation to any scale. Thus a  $\text{Do}^4$  string may give a harmonic of 896 vibrations between  $\text{Si}^3$  and  $\text{Si}^4$ . Tubes, as Trumpets and French Horns, &c., also give harmonics—as also Bells, and, in fine, all musical instruments. The lowest note of the tube, bell, or string, is called the **FUNDAMENTAL**.

**FOURTH.**—When two pitches which are harmonics to the same Fundamental are sounded together, the Fundamental itself may also be heard. Thus, when  $\text{Do}^5$ , making 256 vibrations, is sung with  $\text{Sol}^5$ , making 385, their pulsations coincide 128 times, and give the impression of  $\text{Do}^4$ , although it is not sounded. This fact, too, has served as basis to ill-founded theories.

These things being thoroughly understood, we are prepared to proceed to the practical application of them to our main problem. This is to produce the tones indicated in musical compositions, which is called **INTONATION**; or others near enough to them to answer in their place, which is **TEMPERAMENT**.

Musical Instruments are divided into two classes. **PERFECT INSTRUMENTS** are those capable of producing pitches indefinitely near each other, at the will of the performer; as the Violin, the Trombone, and the Human Voice. **IMPERFECT INSTRUMENTS** can produce only the fixed tones for which they are tuned.

Of all perfect instruments invented by man, the Viol is by far the



most important. The principles of its intonation demand our first attention, because all accurate intonation of the voice depends on that of the Viol. One form of this instrument will illustrate all the others; and for this purpose we select its *best* form, the Violin. In playing this instrument, the correct mental conceptions of pitch, necessary in all musical execution, are here mechanically aided and corrected by the fixed sounds of the open strings, to a degree of accuracy otherwise unattainable in a perfect instrument. The open strings are Sol<sup>4</sup>, Re<sup>5</sup>, Lá<sup>6</sup>, Mi<sup>7</sup>, each an exact fifth above the preceding. Two only of these, Sol and Re, are found in the natural key, or key of Do. In the key of 1# Lá comes in, and in 2#s all are used. In 3#s Sol disappears; Re in 4#s; in 5#s Mi only is left, and in 6 and more sharps no open string remains to be appealed to, except the  $\flat$  7th in the key of 6#s. The flat signatures are less favored than the sharp. The key of 1 $\flat$  has but one open string, and the others none at all. Here the performer is left all afloat, and perfect accuracy is impossible. His only alternative is to play every note comma higher than its true place, and by this means he has one fixed sound in 4 $\flat$ s, beyond which the keys are only used for occasional modulations, as also are the extreme sharp keys.

The best key for the Violin, then, is 2#s; and in 2 or more  $\flat$ s, correct playing can be attained only by false tuning, making the whole instrument comma flat. The Viol might perhaps be improved by adding one or more movable nuts to each string, each shortening its length one 80th, and raising its pitch comma. Six false nuts distributed among the four strings would give four open strings in all keys, from 5#s to 1 $\flat$  inclusive, and one open string in all the keys from 8#s to 4 $\flat$ s inclusive.

We will consider next the human voice—the gift of our kind Creator to nearly every human being; and, in respect to its powers, the most important of musical instruments. Having no fixed sounds of its own, absolutely perfect intonation for any length of time, independent of an instrument, is impossible. An approximation to this is the most important point in all musical instruction, and yet one which is rarely considered in a philosophical light. I may, therefore, be pardoned for noticing it a little more particularly than would otherwise be necessary.

The great point to be aimed at is a *mental* excellence, not a *physical*. Let the mental conception be correct, and correct execution will follow of course. This is in a degree true of all musical execution—in vocal music pre-eminently so.

The mind of a performer is aided in conceiving the pitch he wants, by one or more of the following means : First, his knowledge of abstract pitch. Second, his knowledge of the key in which he is singing or playing. Third, harmony with other performers. Fourth and last, by the interval between his last pitch and the required one.

These different means are of very different degrees of utility, and it is of no small consequence on which the vocal performer is taught to rely. The worst of all these I take first. It is going by the interval. It is difficult to believe sensible teachers think they teach their pupils to read in this way, but long unmelodious lessons of intervals, intended for *daily practice*, in books of high repute, convince us that we cannot be mistaken. Now, let the performer make the following perfect intervals : up a IVth, down a 3rd, up a IVth, down a Vth, and he will find himself just comma below where he started, as may be seen by compounding the intervals. The notes sung may be Do, Fa, Rê, Sôl, Dô. This little example is sufficient to show that intonation by intervals is a mere chimera.

The other three modes must be used conjointly by every singer. The third, (by harmony with other performers,) is the way the pupil begins learning to sing—in unison or octave to the teacher. As a main reliance in ordinary execution its effect is very bad. It soon renders the performer hopelessly dependent. The pupil must early be taught—not to rely on it, but to become as independent of it as possible. It is only in the higher stage of his education that he is again to resort to it, but in a different manner, to correct minute errors in pitch, which can be corrected in no other way. For this purpose quartettes of performers furnish a ready and invaluable aid ; but the best possible method is that of Viols accurately played.

The second method, (by the scale of the key,) is the main reliance of our best common singers, as that by harmony is of our worst. It makes an independent singer of plain music. But modulations of the key often throw him out—he shrinks from music plentifully sprinkled with accidentals. Sometimes the key changes without any accidental in his part ; here he mentally applies names to the notes, indicating their place in the scale he has left—he feels he is not singing the degree he is calling, and breaks down in the middle of a passage that looks easy enough, utterly at a loss why he cannot go on. The progress of music is continually introducing more elaborate harmonies, by a free use of accidentals—hence this defective education will prove

more and more insufficient every year. Unfortunately this reading by the scale, like reading by harmony, makes slaves of its subjects, and they cannot throw off the yoke. It is harder to make a good reader of difficult music of a good singer by the scale than of a raw recruit. Most mental operations, when oft repeated, become habits, and are performed unconsciously and without effort. Thus we walk, read, and write by habit. Not so with reading music by the scale. It is like reading in a cypher, where the character that is used for A on one page becomes O, or P, or Q on another. It must always call for conscious effort, and each new piece of music must be a task before it can become a pleasure.

The remaining mode of intonation is by abstract pitch. Very little use is made of this by common American singers. It keeps the singer by the scale in the octave he means, and the singer by harmony from giving a third for a fifth, &c., but beyond this our methods of instruction themselves prevent the use of it. The true method should be to make this the principal, and both the others auxiliary. The pupil should be taught to rely on this; he will instinctively rely on both the others as much as is for his good, and even more. But it is generally doubted whether the mind can retain an abstract pitch with an accuracy that would be useful in intonation. This faculty, like every other, must depend for its perfection on cultivation. We recollect the pitch of a well-known bell, or a familiar voice, almost to comma. With one who is taught to associate each musical note with its precise pitch, as we do each bell and each voice, practice results in an exactness incredible to those who have never made the trial. And here his knowledge of the *scale* prevents his erring, unless he errs by a whole hemitone—an error greater than he is in danger of making. *Habit* at length supersedes conscious effort, and finally *harmony* steps in to his aid, corrects minute errors which the ear will tolerate in the scale, and the pupil becomes an instrument of fixed sounds and perfect intonation, no more liable to get out of tune than those of wood and metal. "The top-stone is brought forth with shoutings of Grace! grace unto it!"

The question of SOLMIZATION, or applying syllables in singing, is a little one in itself, as all agree that it is a scaffolding which ought to be cleared away as soon as it can be dispensed with. But the vigor of a plant depends on the plumpness of the seed which supplies it with nourishment for a few days, and enables it to strike its roots

deeper. So, too, with a beginner in music, everything depends on beginning well. No question affecting his beginning is trifling.

Two systems of Solmization reign jointly in American singing schools. Both are adapted to the Diatonic scale. The better of the two applies to the degrees of every diatonic scale the names which we have applied to the scale of Do. This is perplexing to the beginner, and exposes the proficient to the evils of reading by the scale before mentioned. But its evil effects do not stop here. It breaks up all analogy between vocal and instrumental music. In this way the keys of 4 #s and 3 bs are sung precisely alike, while in playing not one note is the same; and the keys of 1 # and 2 #s are sung entirely different, while in playing they differ but in one note.

The other uses but four names. It would tax ingenuity to the utmost to make an argument in its favor. It seems incredible that it should ever have made a reader of easy music at sight, but it is said to have sometimes done it. Of course all the objections against the preceding system apply with equal force to this, and it is attended with others so serious, that its prevalence in a rational community furnishes a good illustration of the tenacity with which indefensible customs retain their hold on the best minds.

All the European systems are, in the main, free from these objections. The German system is precisely analogous to that which we have used, only the names selected are, unfortunately, less euphonious, and more disagreeable to sing—particularly the flatted and sharpened names, both of which end in s. The Italian is like that we have here used, except the flats and sharps are indicated by adjectives instead of change of termination, and in singing, *Do*b, *Do*#, and *Do*X, are all sung *Do*, and so of all the rest. By this defect the Italians lose the advantage of *learning the scales by vocal exercises* and in classes—a matter of incalculable importance to those who design learning also an instrument, or studying harmony. The general adoption of the German system, or better still, the names I have used,\* would be an era in American music, and the following results might be confidently anticipated: First—singers would more generally become players, and thereby better singers. Second—players would almost universally become singers, and thereby better players. And lastly—thorough domestic education in music would be placed in the reach of every family where any musical instrument is well played. To this change arises the objection to every proposed change,

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\* Invented by Professor E. Ives, of this city.

that it is more difficult than the old way. Experience alone can answer this objection, and the results will a little surprise those who, knowing it to be better, expect to find it also slower than the old modes.

But some of our best teachers are firmly of the opinion that any system of names used in singing will prove a serious impediment to vocalization, and compel the singer who has once used it to apply names in every difficult place, before he can apply the words. This is a necessary consequence of names transposed with the change of key, and it is barely possible that the inconvenience might result from a rigid perseverance in the use of fixed names long after the occasion for them had passed, but their moderate use by beginners, like spelling words to learn to pronounce them, or beating in order to keeping time, will prove a great aid at first, and, if duly discontinued, of not the least inconvenience afterwards.

The other perfect instruments need no further notice. We pass to imperfect instruments, and first to Keyed Instruments, as the Organ and Piano Forte. These instruments almost universally have 12 fixed sounds in each octave. These sounds supply imperfectly the various pitches of all the scales in which we play. The difference between the true pitch and that used for it is *TEMPERAMENT*. To examine this subject, we will suppose the 12 intervals to be exactly equal. This is called *EQUAL TEMPERAMENT*. To divide the octave into 12 equal intervals, we must find a ratio which multiplied 12 times into itself, will produce the ratio of 1:2. This ratio is  $^{12}\sqrt{1:2}$ , or  $1: ^{12}\sqrt{2}$ . To extract the 12th root of 2, we begin by extracting its square root. This, we know, cannot be expressed in figures, and of the 12th root is equally incommensurable. If two strings,  $\frac{1}{12}$  of an octave apart, vibrated once together at the Creation, their vibrations would not again coincide till the Resurrection Morn! The problem, however, like squaring the circle, can be solved near enough for all practical purposes, and the vibrations will be 1:1.059463. To see how these intervals will fit our purpose, we will call the lowest of 12 pitches Do, the second Don and Rer, the third Re, &c. When we first look at the 62 sounds in the 18 scales we have given, we are ready to despair of any accommodation of them to 12 fixed pitches, but we know, as the intervals of every scale are exactly similar, that an instrument of equal temperament will fit one key as well as another, since it matters not with which of the twelve sounds you begin. By comparing the scale of the key of Do with the



corresponding notes in the table of Equal Temperament, we shall see that all the pitches are too sharp except Sol, but all so slightly, that no perceptible injury to the *melody* results. It is not so with the *harmony*. As it is harmony that fixes the precise intervals in intonation, so must considerations of harmony alone decide every question of temperament. And because the IIrds, the 3rds, and the Vths, are so much more important than IVths, the VIths, and the 6ths, the former alone are to be taken into consideration. We find the Vths of mean temperament flat, by an interval of about 499 : 500, and the IIrds sharp, by an interval of about 99 : 100; and as a IIrd and a 3rd make a Vth, the 3rd must, therefore, be quite flat. So Mean Temperament furnishes us no good chords, though none of them are absolutely intolerable. Some of these chords occur much more frequently than others. Son, for instance, is Vth to Don, and IIrd to Mi, but in the latter relation it occurs more than 12 times as often as the former. If flattened more than in Equal Temperament, so as to make a worse Vth but a better IIrd, the ear is pleased with the change a dozen times to where it is annoyed once. Considerations like this have led to various schemes of Unequal Temperament. The best probably of these is that of Professor Fisher.

Musicians are not agreed what temperament is best. In Unequal Temperament some of the chords are very good, while the aggravated dissonance of others, called by tuners the *Wolf*, imparts a peculiarity to the keys in which it occurs, much admired by certain musicians. Science hardly justifies these predilections, which must be chiefly attributed to fancy and prejudice. Some inequality of temperament may be preferable, but no key ought to be made so bad as to give it a character for harshness.

One argument for Equal Temperament seems strangely to have been overlooked by every one who has discussed the subject. This arises from the influence, before alluded to, which musical bodies nearly in harmony have on each other. Two organ pipes, differing nearly  $\frac{1}{12}$  of an octave, when sounded together may sound in unison. In full chords this influence is stronger than with two sounds only. But for this principle, what is called "the furniture stop," opening at the same time perfect thirds, perfect fourths and perfect fifths to each note played, would produce the most frightful discords if each pipe sounded its own note. Influenced by each other, and by the other stops, they produce the most sublime harmony. Strings are more



easily influenced by sounds than pipes. A wonderful illustration of this is furnished by an attempt of a performer, at the commemoration of Handel at Westminster Abbey, to produce a discord on his violoncello during a grand chorus. He could not do it! Wherever he stopped it, it would produce perfect harmony with the other instruments. As he slid his finger on the string it would jump from harmonic to harmonic. This consideration tells in favor of Equal Temperament, but is far from settling the question. The extremes must be Professor Fisher's scheme on the one hand and Equal Temperament on the other. The tuner has ample liberty between them to consult his own judgment and the taste of the musical world.

The annexed table gives the comparative length of string to produce the 12 pitches of an octave tuned to Equal Temperament, and by Professor Fisher's scheme. By means of a monochord the pitches can be taken from the table and transferred to an instrument.

	<i>Equal Temperament.</i>		<i>Fisher's Scheme.</i>		<i>Untemp'd.</i>
	Length.	Vibrations	Length.	Vibrations	Vibrations
Do <sup>♮</sup> ,	5000	256.0	5000	256.0	256.0
Si <sup>♯</sup> ,	5297	241.6	5345	239.5	240.0
La <sup>♯</sup> , Si <sup>♯</sup> ,	5612	228.1	5595	228.8	227.6
La <sup>♯</sup> ,	5946	215.3	5979	214.1	213.3
Son <sup>♯</sup> , La <sup>♯</sup> ,	6300	203.2	6371	200.9	200.0
Sol <sup>♯</sup> ,	6674	191.8	6687	191.4	192.0
Fa <sup>♯</sup> , Sol <sup>♯</sup> ,	7071	181.0	7150	179.0	177.7
Fa <sup>♯</sup> ,	7492	170.9	7479	171.1	170.7
Mi <sup>♯</sup> ,	7937	161.3	7997	160.1	160.0
Re <sup>♯</sup> , Mi <sup>♯</sup> ,	8409	152.2	8419	152.0	
Re <sup>♯</sup> ,	8909	143.7	8938	143.2	144.0
Don <sup>♯</sup> , Re <sup>♯</sup> ,	9439	135.6	9568	133.8	
Do <sup>♯</sup> ,	10000	128.0	10000	128.0	128.0

The next class of imperfect instruments is of the Trumpet class. These, if fixed in length, will give one fundamental note and its harmonics. Its intonation is perfect in the key of which its fundamental is tonic, but it is limited to the harmonic notes. Some are furnished with contrivances for instantaneously varying their length and so producing other fundamentals and other sets of harmonics—thus multiplying the resources of the instrument, but leaving them wholly

inadequate to the wants of the musician. The deficiencies are in a degree supplied by partly stopping the mouth with the hand. This makes a "*perfect instrument*" of it, but greatly injures the quality of the tones.

Another class of imperfect instruments vary their pitch by lateral openings closed by the fingers and by keys. These are always inaccurate in pitch, and as you diminish this objection by more openings, you injure the quality of every tone of the instrument.

It is needless to pursue this subject farther. We see it beset with difficulties on every side. Are they insuperable? Theoretically they are not. An organ can be made to execute perfect intonation, but the bulk, the expense, the liability to get out of order, and above all, the labor of tuning—to be forever recommenced as soon as completed—forbid the hope of practical success until a new era in mechanics. The attempt has been made on stringed instruments with frets, as the Guitar—but that instrument is not in itself of importance enough to justify the attempt, and the momentary variation of its strings forbids the hope of entire success.

Composers have themselves thrown obstacles in the way by writing their music expressly for imperfect intonation—not only of keyed instruments, but even of the violin. And, in fact, it is said by good authority that few or no performers on this noble instrument execute their notes with even as great accuracy as well-tuned imperfect instruments.

To sum up the whole matter, we conclude that although perfect intonation may be the subject of rigid mathematical inquiry, and its approximation may furnish full scope for the ambition of genius for ages to come, its full attainment is not to be hoped until we strike our harps of gold, and sing that song which no one can learn but the Redeemed from the Earth.









PALEOZONISUS LAXUS. Natural Size.





Fig 1

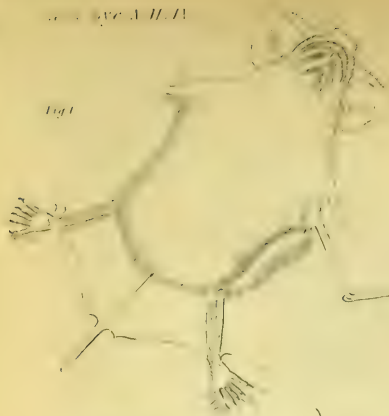


Fig 2



Fig 3

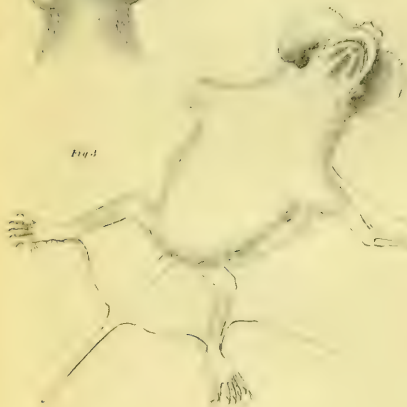
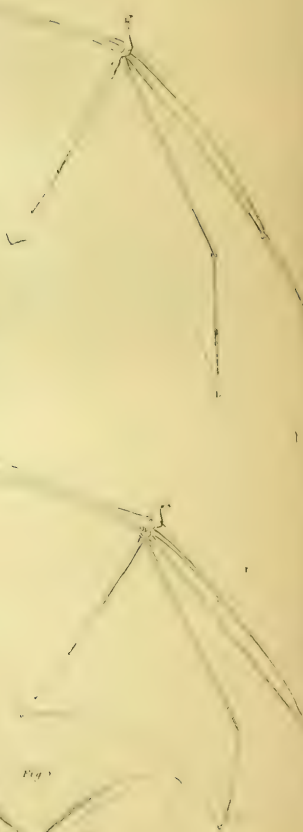


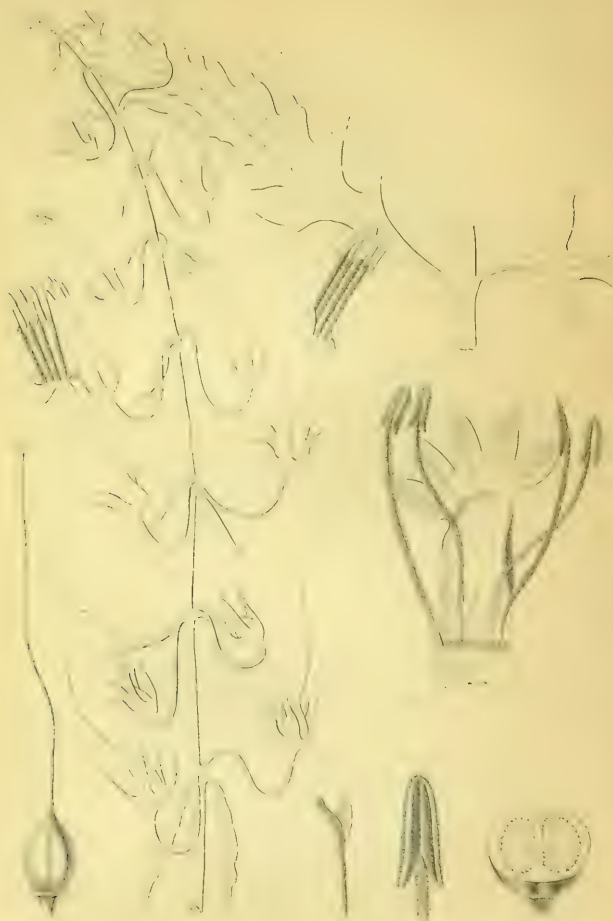
Fig 4



Fig 5







*Macrorhiza Perotti*













Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8





Fig. 1



Fig. 2



Fig. 3



Fig. 3



Fig. 4



Fig. 6



Lith. of C. W. Endicott. New York





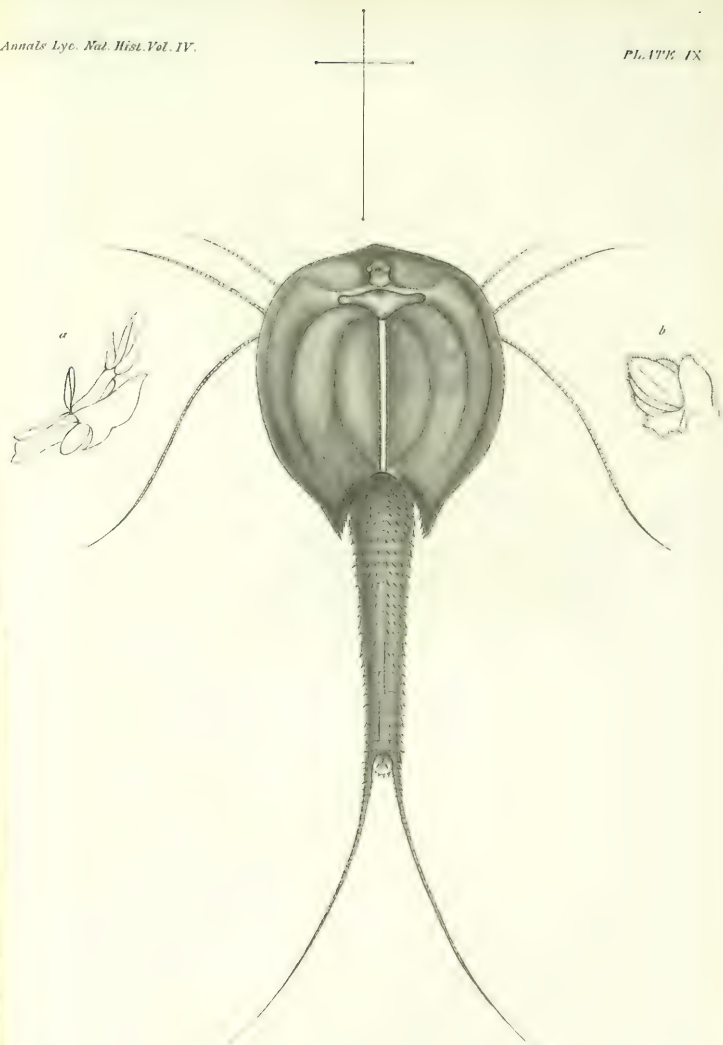




Fig 6

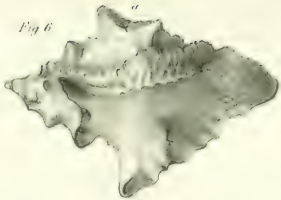


Fig 6 b



Fig 7

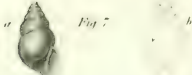


Fig 8 c

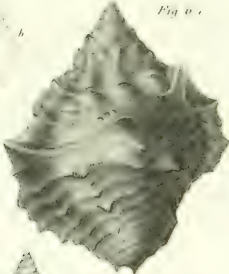


Fig 5



Fig 8



Fig 2



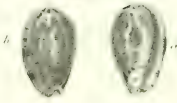
Fig 3



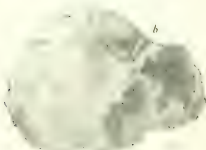
Fig 1



Fig 4



b





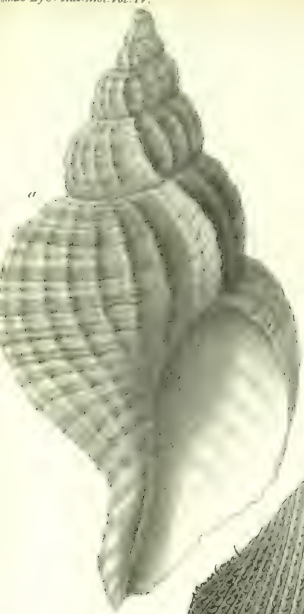


Fig 2

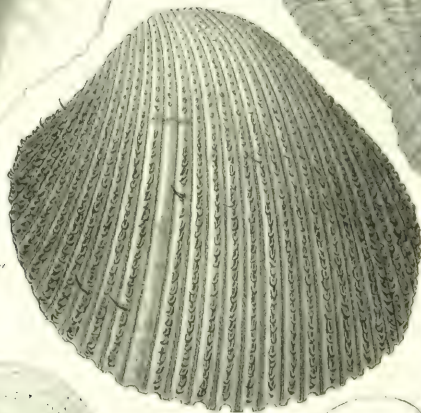
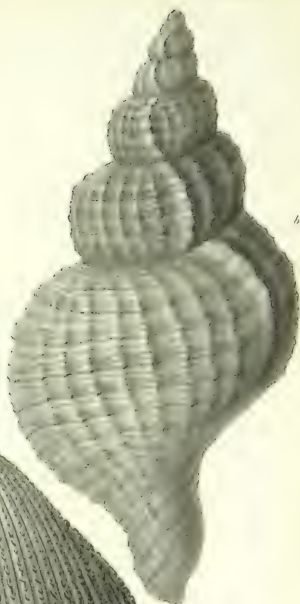
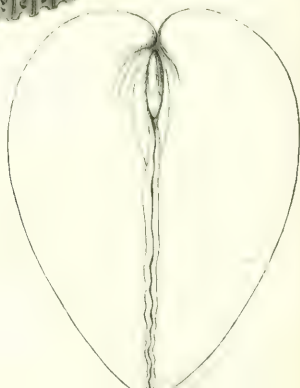


Fig 1









*G. F. Lawrence del.*

ANSER NIGRICANS, *Laurence*



*Fig. 1*



*Fig. 2*



*Fig. 3*



*Fig. 4*



*Fig. 5*



*Fig. 6*





*Fig. 8.*



*Fig. 9.*



*Fig. 10.*



*Fig. 11.*



*Fig. 12.*



*Fig. 13.*



*Fig. 14.*









Booby, *Manducalis, Aluco.*  
The Booby, No. 1.





*Cynipis zibulata*

Fig. 1. Dorsal surface.

Fig. 2.





Geo. N. Lawrence, Del.

G. R. W. Endicott Lith. N. York.

*Picus Lecontei. Jones.*

*1/2 Natural Size.*





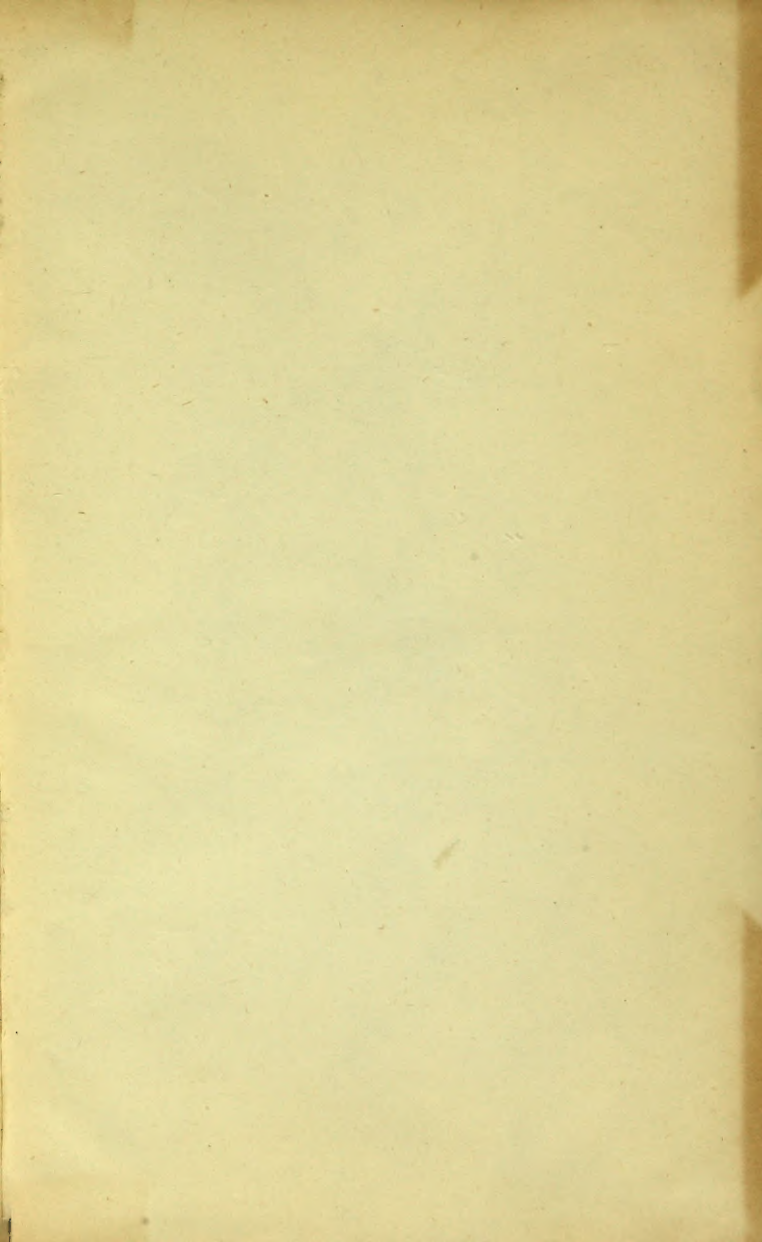


- 1 *Bullia plicata*
- 2 *Marginella chrysomelina*
- 3 *Philippinarum*













JUL -- 1987

